ARCHEOLOGICAL ASSISTANCE PROGRAM
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INTENTIONAL SITE BURIAL:
A Technique to Protect against Natural or Mechanical Loss

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U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

This is the second technical brief in the series on site stabilization and maintenance developed through cooperation among the Center for Archaeological Research at the University of Mississippi, the Tennessee Valley Authority, and the National Park Service. The series is based upon existing knowledge and stabilization project experiences to provide programmatic guidance appropriate for problem solving. As baseline information, the series demonstrates the highly variable conditions surrounding archeological site loss, discusses alternatives, and suggests how applicable stabilization techniques can be modified to meet needs.

Information exchange is an important objective of this series. The National Clearinghouse for Archaeological Site Stabilization is organized as a central location at which to seek information as well as to foster interactions among governmental agencies, professionals, and the private sector. It is one solution to the concern for improving technology transfer in historic preservation. The address and telephone number of the Clearinghouse are given at the end of this technical brief.

Introduction

In an absolute sense, the preservation of archeological sites is an unattainable goal, since the aging process of all materials is ongoing. Techniques are available, however, to retard losses to site integrity that are the result of natural and/or cultural processes. To the extent that the processes that cause these losses can be slowed, resources can be stabilized and protected, and in that sense, preserved. Intentional site burial is offered as another of several alternatives that may prove to be appropriate means of achieving that goal.

Covering archeological sites is not a new phenomenon, since the natural burial of sites is a common occurrence. The Murray Springs site in southern Arizona (Haynes and Hemming 1968) and the Bacon Bend site in eastern Tennessee (Chapman 1978) were covered as a result of gradual colluvial and/or alluvial deposition, while the ancient Roman cities of Herculaneum and Pompeii were rapidly sealed by volcanic activity. Natural covering in these instances has worked in much the same manner as artificial covering: some kinds of artifacts and ecofacts are well preserved, while the loss of other kinds may be accelerated.

In reality, stratified archeological deposits may be viewed as microcosmic cases of site burial. Each succeeding occupation or each succeeding flooding episode buries the preceding deposits and to some extent, protects the earlier, lower occupational levels from changes that may be the result of physical and chemical processes on the land surface. Cultural and environmental changes proceed at sufficiently gradual rates so that in most cases succeeding depositions are chemically and biologically compatible with the lower levels and decay of the lower levels is not accelerated. Mechanical loss of the lower levels of sites occurs as new pits are dug, new posts are set, and as a result of bioturbation associated with the latest in the series of occupations. Like the burial of the Murray Springs and Bacon Bend sites, differential preservation of the various artifact classes is an accepted property of archeological sites.

The burial or intentional covering of archeological properties has been used as a means of protecting resources from natural or mechanical loss (U.S. Department of the Interior 1975; Jensen 1976; Chace 1981; Klinger 1982; Garfinkel and Lister 1983; Thorne, et al. 1987; Wilkie, Aide, and Knox 1986). Most of the completed intentional site burial projects that have been reported are in or adjacent to construction areas. An annotated bibliography describing some of those efforts is given at the end of this technical brief.

Design of an Effective Project

The objective of this technical brief is to provide guidance on design of an effective project for intentional site burial. It identifies the process by which an archeological program manager can: (1) evaluate the components of the site; (2) measure potential impacts, including decay processes, against the goals for protecting the site; (3) assess the benefits of intentional site burial; and (4) specify the methods and procedures to be used in the project, including cost considerations.

Documented cases of site burial can be referred for background technical and methodological support when a new project is being considered, but every site that is considered for artificial covering must be treated as a separate case. This is due in part to the extent of variability among individual sites as well as the degree to which the components

of a single site will vary internally. Each site incorporated into a stabilization design must be judged on its particular internal and external components, even though several sites, in close proximity to each other, may be scheduled for treatment.

Evaluation of Site Components

Since the stabilization of an archeological site follows an orderly sequence of events (Thorne 1988a), a site's archeological components will have already been defined at the beginning of a preservation project. Testing for National Register eligibility will have demonstrated the range of artifacts that must be protected, including bone, shell, ceramic and lithic artifacts, wood and charcoal, and the variety of features that must be considered in the development of a preservation plan. In order to complete the evaluation of site components that is necessary for the development of a design for the burial of a particular site, additional information on components other than artifacts will be required. These data may go beyond those that are collected during the course of normal archeological investigations and may include: pH determinations taken from a number of loci within the site; data indicating ongoing and potential oxidation/reduction processes; and soil samples of the site's matrix as well as the underlying strata. Many approaches to the analysis of archeological soils have been taken. One example is from resistivity surveys (Carr 1982). The definition for site matrix follows Mathewson (1988) and Mathewson and Gonzales (1989). (See Figure 1 below.) The soil samples may have to be tested for compression strength and permeability.

The collection of these data will allow the development of reasonable estimates of how a site's artifact and ecofact components have reacted to their physical and chemical environments through time. A model can then be derived to predict how the artifact component will be affected by the placement of an artificial covering. These additional data are necessary for the proper selection of the fill material that will be used to cover the site, since chemical and organic compatibility of both the site and fill are necessary. Post-burial monitoring assessments must also rely on these data since they will form the baseline from which all evaluations will be made.

Measurement of Impacts and Setting Goals for Protection

The design plan for intentional burial must be conceived in a manner that will insure that maximum protection is afforded the resource while minimizing any negative effects caused by such an overburden. In order to determine the best design, a multidisciplinary team of specialists is recommended. This team should include an archeologist, a geologist, and an engineer. Each will have specific responsibilities in developing the stabilization design plan.

SITE COMPONENTS

E = ENHANCES PRESERVATION
A = ACCELERATES DECAY
N = NEUTRAL OR NO EFFECT

PROCESSES	ANIMAL BONES	SHELL	PLANTS	CHARCOAL	CRYSTALLINE LITHICS	GRANULAR LITHICS	CERAMICS	ARCHAEO. FEATURES	SOIL ATTRIBUTES	METALS	CONTEXT	ISOTOPE CONTENT	TOPOGRAPHY
ACID ENVIRONMENT	A	A	E	N	N	A	N	N	A	A	N	A	N
BASIC ENVIRONMENT	E	E	A	N	N	E	N	N	A	A	N	N	N
DRY (CONT.)	E	E	E	E	N	E	N	N	N	E	N	E	N
WET ANAEROBIC(CONT.)	E	E	E	A	A	A	A	A	A	A	N	A	A
COMPRESSION	A	A	A	A	N	N	A	A	A	N	A	N	A
MOVEMENT	N	N	N	A	N	N	N	A	A	N	A	N	A
WET-DRY	A	A	A	A	A	A	A	A	A	A	N	A	A
MICOORGANISMS	A	N	A	A	N	N	N	N	N	A	A	A	N
MACROORGANISMS	A	A	A	A	N	A	N	A	A	N	A	N	N
WET AEROBIC	A	A	A	A	N	A	A	A	A	A	N	A	N
FREEZE-THAW	A	A	A	A	A	A	A	A	A	N	A	A	A
FREEZE	A	A	A	A	N	A	A	N	E	N	A	E	N
THAW	N	N	N	N	N	A	N	N	A	N	A	A	N

Figure 1. This model relates a change in the physical, chemical, or biological environment of a site buried for preservation to the impact of that change on a specific site component or spatial relationship. (Matrix courtesy of Dr. Christopher Mathewson, Texas A and M University)

Their efforts must be integrated and not performed as a series of independent steps. The archeologist must define the various classes of artifacts that are to be preserved and indicate what classes, if any, may ultimately be unprotected or lost (more about this later). The geologist must review the basic preservation (artifact class) requirements that have been set by the archeologist. The geologist should understand the mechanisms of artifact decay and on that basis be able to prescribe fill materials that will best fit the preservation needs of the resource. Finally, the engineer will be charged with designing the mechanics of the burial procedure. His or her level of understanding must extend from fill acquisition and placement to the hydraulic properties of the site and how hydraulic changes will affect the site's contents. He or she will also be responsible for designing the placement of the fill so the site components will not warp as a result of heavy equipment movements or the weight of the fill column over time.

During the process of arriving at the best plan for covering a site, engineering and geologic design criteria that are imposed on the project may seem unreasonable or unrealistic from the perspective of the archeologist. Such instances should be overcome through team negotiations. Successful design negotiations will be dependent on a shared understanding of the preservation needs of the resource by all team members. Frequently, however, design standards that must be met are set by the land managing agency or by one of the organizations that have established governing regulations for construction, e.g., the American Society for Testing Materials (ASTM). When external criteria of this kind must be taken into account, the archeologist must be prepared to yield to those constraints. The best solution to problems of this kind may be to seek innovative ways of meeting required standards while protecting the archeological resource.

Decay Processes

Predictions about future reactions must be based on an understanding of the decay processes that operate on the various components of an archeological site. Mitigation of the effects of the decay processes and the external forces that impact the resource is the primary goal of the stabilization effort. A secondary goal of not accelerating ongoing decay or adding new destructive processes must be a consideration of the stabilization design.

Chemical processes related to oxidation and reduction combined with soil pH characteristics are most likely to be the primary causes for naturally stimulated site content loss. Cyclical wetting/drying and freezing/thawing can affect the decay process through both chemical and mechanical means. Culturally derived disturbance can act as a catalyst that will speed up chemical and mechanical loss. Biological degeneration of a resource is accelerated by macroorganism activities, e.g., burrowing animals. Any environmental alteration that increases the number of microorganisms will hasten the decay of some classes of artifacts and ecofacts.

Current preservation technology, combined with the nature of the decay processes that affect archeological materials, is such that not all artifact classes can be protected simultaneously. Mathewson (1988) has outlined some of the problem areas in site burial, and the model of site decay can be useful in both understanding and predicting how the preservation-natural decay process will proceed (Figure 1).

Even though our current technology limits how far we can go toward total stabilization, we can successfully design against further loss of some of a site's components. As can be seen from the Mathewson model, some design criteria will promote the preservation of one kind of artifact while accelerating the loss of some others. This suggests that when stabilization through burial is considered, the design team may need to allow the loss of certain classes of artifacts for the sake of preserving others. The natural decay processes that occur as a midden develops will almost always include an aspect of differential preservation of artifact classes. The artificial burial of a cultural deposit will embody those same aspects, but in a carefully conceived framework.

To illustrate the usefulness of the model, it is possible through inspection to predict that if a continuously dry environment is designed, preservation of some aspects of the site will be enhanced while other artifact classes will remain unaffected. This type of dry environment would be nearly identical to those found in the caves of semi-arid and arid areas. In most parts of the United States we are unlikely to construct a continuously dry environment. We can, however, engineer site covering plans in such a manner that the hydraulic character of the site is altered dramatically from its natural state and a site's matrix dried considerably. Conversely, and as can be seen from the model, the rate of loss to more classes of artifacts increases with the level of moisture.

Again, drawing from the model, if an alkaline environment is artificially created, bone, shell, and the granular lithic assemblage would be better preserved while plant material, soil attributes, and metal artifacts would be lost at a faster rate. If by design the site stays continuously wet and an aerobic state exists, decay of all organic artifacts and remains will be hastened.

Benefits of Intentional Site Burial

The difficulties of covering a site are more apparent than real and can be overcome through a stabilization program that is designed with care. Advantages will accrue to the resource that have been previously unavailable. Protection from loss can be extended to both natural and cultural processes. (A convenient summary of these processes appears in Mathewson 1989.)

Protection from cultural processes

Culturally derived site loss includes vandalism, looting, and the full range of development activities. Vandalism, which is considered to be acts of deliberate or unintentional damage to or destruction of archeological resources, will be totally eliminated since the site and its contents will be removed from immediate accessibility. Site burial should at least make looting of site contents for personal pleasure or financial gain more difficult, if not impossible. Protection from develop-

ment activities is the most direct benefit, particularly when the multidisciplinary team responsible for the stabilization design plan clearly defines and sets such goals.

Protection from natural processes

Naturally occurring loss is a combination of site and content aging with some form of erosion. If a site is not shielded from the consequences of rainfall, the combined effects of frost heaves, subsequent rainfall and strong winds, deflation of the surface will be continuous. The effects of acid rain on site contents are as yet poorly understood, but some form of protection may be necessary.

An obvious advantage of site burial is that surface erosion of the archeological matrix is eliminated when a new land surface is produced. Similarly, future freezing and thawing can be eliminated by designing the fill depth to exceed the depth of the frost line. Newly created land surface or strata can also provide relief from the absorbed effects of acid rain as well as serving to shed rainwater. Sites that are within reservoir or lake drawdown zones or along the splash zone of lake margins are not considered to be prime candidates for this treatment. Earth burial is only an appropriate means of stabilizing sites in wave impact environments if the design plan includes some form of hard covering that will protect the newly created surface, e.g., riprap, bulkheads, or filter fabric. (See Thorne 1988b for discussion of the use of filter fabrics as protective hard covering.)

Revegetation should be a part of the stabilization plan to insure land surface stability, and the newly created land surface can be used for a variety of purposes within specified limits. In specific instances, surface stability can be assured while cash crops are being cultivated on the newly placed fill. Care must be exercised in allowing agricultural production to continue after fill is in place (Figure 2), and there must be regular monitoring to insure that post-burial damage is minimized (Figure 3).

If properly designed, the site and the superimposed fill can be used as extra-load bearing strata for parking lot construction. The broadest possible post-burial uses of the new land surface should be anticipated during the preservation planning and design phase. The design criteria for those uses must be incorporated into the stabilization program.

Project Methods and Procedures

Several other concerns must be taken into account before proceeding with the actual burial of an archeological resource. First among these is the establishment of a reference or benchmark system so that the site and specific loci within it can be relocated in the future. This is particularly important if future scientific investigation is specified as a goal for the burial project. Permanent markers should be set and appropriate maps should be marked to indicate the location of the site. Pertinent benchmark data should be noted on the maps as well as contained in a written report. Clear and easily located on-the-ground marking is particularly important if the site is likely to be in a construction impact zone in the future. If post-burial use of the newly created

Figure 2. The Rock Creek Site, Natchez Trace Parkway, Alabama: Site returned to cultivation.

Figure 3. The Rock Creek Site, Natchez Trace Parkway, Alabama: Buried site approximatively two years later showing damage from farm equipment.

stratigraphic layer is anticipated, benchmark placement should be done in such a manner as to accommodate the new use.

To insure that there is no inadvertent mixing between the archeological matrix and the covering material, the installation of some form of horizon marker may be desirable. A number of filter fabrics are available that can serve such a purpose (Thorne 1988b). Most of the filter fabrics are chemically inert and have a relatively long lifespan if exposure to the sun is minimized. Alternatively, culturally sterile sand, gravel, furnace slag (1/4"), or a clay-gravel lens may be placed between the fill and the site matrix to clearly mark the stratigraphic contact zone. Gravels and other naturally occurring materials may be used, but only if they have a zero distribution within the archeological matrix. Care must also be taken to insure that the horizon marker does not alter the chemical or hydrostatic character of the cultural deposit unless such a change has been intentionally incorporated into the burial design. The use of tightly compacted clays or clay-gravels has the potential of altering the permeability of the site as well as introducing pH variations.

Burying the site

The mechanical process of burying the site must be designed in a manner that will insure that the site matrix is protected during the placement process. Preconstruction testing can be used to determine the construction equipment and fill material load limits that are allowable without causing compression or warpage of the artifact and feature components of the site. Compression from the weight of the machinery necessary to place the fill should not pose a problem since relatively heavy equipment exerts only a small amount of vertical pressure per square inch. As the depth of the fill increases, the pressure exerted by any equipment crossing the site is further dissipated. Vibrations that might cause settling of the matrix are similarly reduced and dampened as the depth of the fill increases. Consideration should be given to damage to upper levels of the site that may result from the grinding action of heavy equipment traffic. It is essential that the first layer of fill to be placed across the site be thick enough to adequately buffer the matrix. Equipment operators should be provided with sufficient information about the project so that they will understand the need to protect the site from equipment movement. Tracked equipment is preferred because the pads on the tracks effectively spread the weight of the equipment over a greater area.

Monitoring the site

Finally, provisions must be made to monitor the site once the burial process is completed. In this instance, post-burial monitoring of the site may go beyond simply making periodic inspection visits. While monitoring must include regularly scheduled inspections, those visits will be made for the specific purpose of continuing to contribute to the protection of the resource.

Post-burial monitoring, as recommended here, will have several meanings. Any of these can be applied to any site, but each must be used on a site-by-site basis. At its lowest level, monitoring will be completed to do little more than regularly ascertain the condition of the surface of the site and to have those observations recorded. At the next level, site condition observations will be made, problems of stability noted, and some effort will then be made to rectify any problems. These two views of monitoring deal with the condition of the newly created surface and not with the buried archeological site. The most complex of the monitoring procedures will deal with determining the condition of the archeological matrix. Since the resource will no longer be readily accessible, the decision must be made during the design phase of the project as to which monitoring approach will be taken. If it is to be the latter course, evaluation procedures must be incorporated into the total burial plan.

Post-burial test areas should be determined, and these loci must be noted on appropriate maps and tied to the system of benchmarks that will be set to mark the location of the site. If subsurface evaluations are planned for a number of years, a schedule of specific test loci should be prepared. The locations of these successive test units will be in part dependent on the types of evaluation data that are to be recovered. Generally, if test excavation and boring placements are to be used, they should be designed to avoid known or suspected archeological feature locations. Any form of blind subsurface testing such as boring always has the potential of damaging or destroying significant features unless locations are incorporated into the burial design.

Electronic monitoring of subsurface conditions also should be considered during the design phase of the project. Various metering gauges are available to record pressure and soil movement both vertically and horizontally. Magnetic displacement gauges that are designed to measure movement under road surfaces are appropriate for use in an archeological context and their use will not require any subfill disturbance.

If sufficient testing is completed prior to working out a burial design and if the burial design is properly conceived, no additional disturbance should accrue to the cultural deposit as a result of placement of the fill. Responsibility for the adequacy of the design will be in the hands of the geologist and the engineer and, given an appropriate design, site monitoring should be concerned with only the condition of the superimposed fill material.

To insure that the appropriate monitoring regimen is adequately carried out, a schedule should be prepared that details a timetable for the process and the extent to which testing will be taken. A statement specifying the intent of the monitoring as well as the schedule for inspection visits should be incorporated into an agreement that will be signed prior to completing the plans to bury the resource.

Cost considerations

Costs for the burial of a resource will vary from site to site and are dependent on a number of factors. Certain fixed costs can be anticipated, however. Salary or professional fees and overhead should be included for the multidisciplinary team (archeologist, geologist, and engineer) for both the design and installation phases. Geologic and engineering sample collection and analysis costs must be anticipated, both for the matrix and the fill material. If a natural filter is to be installed, it also should be tested to insure compatibility with the site's geological and hydraulic components. Engineering survey and setting of the permanent benchmarks will be additional essential costs since benchmarks must be carefully located to facilitate post-installation monitoring.

Material costs will include the benchmarks, the filtering agent and its installation, the fill material and its transportation and placement, and any remote sensing monitoring devices. If revegetation of the newly created surface is a part of the design plan, acquisition and installation of cover plants will form part of the total cost. If fertilizer must be used as a part of such a plan, care must be taken that it not affect the chemical composition of the archeological deposits

Monitoring costs for the proposed period should be anticipated, and a mechanism must be devised to insure that future funding is available. Most previously completed projects recommend subsurface testing over a period of years that typically goes beyond the ability of any agency to guarantee funding. The direct consequence is that agencies will be reluctant at best to enter into such an agreement, since budgetary structuring is established on a year-by-year basis.

It may be that the most direct route to post-burial monitoring funds will be through a specific line item request in the operations and maintenance budget of the appropriate branch of an agency. In many instances, the construction unit of an agency will relinquish responsibility for a project once construction is completed, and maintenance for the post-burial period will become the responsibility of another branch. Communication of responsibility between branches is an absolute necessity if these responsibilities are to be adequately met.

To insure that adequate funds are available and that the monitoring process is regular and timely, funds should be placed in the line item budget on a yearly basis. Once the item becomes a specific part of a budget, continuation on a yearly basis will be less difficult and will insure also that the monitoring effort meets preservation requirements.

Request for Assistance

Information exchange about site stabilization is available from and should be reported to:

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National Clearinghouse for Archaeological Site Stabilization
Center for Archaeological Research
University of Mississippi
University, MS 38677

Archeological Site Stabilization Bibliography

The National Clearinghouse for Archaeological Site Stabilization maintains a bibliography that is intended to support the conceptualization, design, and development of site stabilization and preservation projects. The bibliography is divided into four sections: (1) Philosophy, (2) Technical Support, (3) Management Recommendations, and (4) Practical Applications. Annotations follow some of the entries and provide the user with a brief but sufficient sketch of the entry. As new source materials become available they are entered into the reference work.

Section 1 - Philosophy provides an overview for site preservation and stabilization and provides the user with sufficient background to philosophically justify archeological site stabilization projects. *Section 2 - Technical Support* draws together technical information that is generally unknown to archeologists. Reliance on and knowledge of these data are integral to the design of stabilization projects, particularly if cost effective and innovative stabilization measures are to be put into place. *Section 3 - Management Recommendations* contains a mix of projects to provide the user with an idea of how site stabilization has been approached. *Section 4 - Practical Applications* is devoted to the presentation of specific archeological site stabilization case histories. Data contained in these case histories will provide an insight into the planning and implementation of stabilization projects.

For a copy of the the Bibliography, write to the address listed above.

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Wilkie, Duncan C., Michael T. Aide, and Ray Knox
1986 *Phase III, Archaeological Mitigation of Archaeological Sites 23BU239 and 23BU241.* Report submitted to the Missouri Highway and Transportation Department, Jefferson City.

Annotated Bibliography

Garfinkel, Alan P., and Bobby L. Lister
1983 *Effects of High Embankment Construction on Archaeological Materials.* Transportation Laboratory, California Department of Transportation (CALTRANS), Sacramento.

The authors report on a field study conducted by CALTRANS to determine the effects of placing a 75-foot-high embankment over an area constructed to simulate a North American Indian archeological site. Two small test units were excavated, and artifacts were placed in three layers. The locations of all artifacts were carefully plotted, and both units were instrumented with soil pressure meters. Access to the test units beneath the fill was monitored through a 5-foot culvert that terminated with a 72-inch "T" section. Ground water levels beneath the fill was measured through a well drilled into the "T" section. Soil pressure meters were also placed in an actual site on an adjacent project to provide comparative data. Examination of the buried materials indicated soil compaction around the artifacts, and gross morphological changes in the test materials were noted. Guidelines and recommendations for future site burial projects are included. This project is also covered by a technical note in the *Archeological Site Protection and Preservation Notebook*, described below.

Jensen, Peter M.
1976 *Archaeological Investigations at CA-MER-27. The First California Site for which Total Coverage with Soil has been Agreed to as Partial Mitigation.* Report prepared for U.S. Bureau of Reclamation, Sacramento.

Jensen presents the results of archeological investigations that were conducted prior to the burial of CA-MER-27. He includes a 10-page discussion of the future burial of the site and raises a series of questions regarding the validity

of site burial as a reasonable mitigation measure. He concludes what appears to be a negative view of site burial by indicating that limited knowledge about a significant archeological site is sufficient justification for its preservation using this method. More importantly, Appendix 2 describes the proposed burial activity. It includes as part of that description portions of the Bureau of Reclamation's original burial proposal with data on compaction, settlement, and slumping which were used to predict how the archeological component might react to burial under a 3-foot protective covering. This appendix provides a great deal of insight into the planning and testing required prior to the burial of an archeological property.

Mathewson, Christopher C. (editor)

1989 *Interdisciplinary Workshop on the Physical-Chemical-Biological Processes Affecting Archeological Sites.* Contract Report EL-89-1, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg.

The information in this report was collected to develop an archeological site decay model that can be applied in planning and design activities for intentional site burial projects. It presents the papers of the workshop as a convenient summary of current scientific knowledge concerning site development processes and their influences on cultural materials. Cultural and natural processes are discussed, particularly to identify interactions of physical, biological and chemical factors with archeological site components. The archeological site decay model is based upon the decay matrix illustrated in Figure 1 (in this technical brief).

U.S. Department of the Army, Corps of Engineers

1988 *The Archeological Site Protection and Preservation Notebook.* Environmental Research Program, Vicksburg.

The notebook contains a regularly updated series of technical notes that summarize original research and abstracted published and unpublished accounts about site preservation. They address the causes of site degradation and techniques for in situ site protection. The notebook is organized into eleven chapters that cover different protection categories. The chapter on intentional site burial contains three technical notes. Two additional notes on the subject will be published in the immediate future.

Wilkie, Duncan C., Michael T. Aide, and Ray Knox

1986 *Phase III, Archaeological Mitigation of Archaeological Sites 23BU239 and 23BU241.* Report submitted to the Missouri Highway and Transportation Department, Jefferson City.

The authors summarize both the Phase I and Phase II work completed at these two sites and the Scope of Work for the mitigation project. Site burial and artifact reburial are included as basic components of the mitigation plan. They further indicate that the research design for Phase III work will be based on an improvement of the CALTRANS site burial test project. They indicate that the present project is designed to test the impact of moderately deep burial on both artifacts and intact site components. Portions of both sites were left undisturbed and scheduled to be covered as a part of the construction phase of Route 60. Following selective excavation and detailed analysis of the recovered artifacts, representative examples were returned to the site and reburied in their original locations.

Recommendations for measuring burial impact include soil chemistry tests at 2-year intervals and excavations to compare undisturbed features and reburied artifacts after a 10-year interval. This interval should allow the detection of any impacts that burial and reburial will have on the site and its contents. A description of the engineering design used in the burial of these two sites is not contained in the Scope of Work, the mitigation proposal, or the archeological report. One is left to assume that standard Missouri Highway and Transportation Department engineering and construction design was used. Complete physical and chemical data as well as some soil compaction data were gathered to serve as a baseline in future studies.

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THE KENTUCKY ARCHAEOLOGICAL REGISTRY:

Landowner Participation in Site Preservation

By A. Gwynn Henderson, Kentucky Nature Preserves Commission

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Laws directed at protecting archeological sites frequently target those located on State or federally owned property, but many sites are located on private property. These sites represent a significant portion of the identified sites in many States, meaning that large numbers of our nation's archeological resources are not protected.

The Kentucky Archaeological Registry was created to address this problem. Modeled on The Nature Conservancy's nationally successful program for protecting privately owned natural areas, the Registry represents a way to involve private landowners in the protection of Kentucky's significant archeological sites. Landowners are asked to make a commitment to preserve and protect their sites and are presented awards in recognition of these commitments. In addition, they are educated about their sites' significance, provided management assistance, and informed about stronger preservation options available to them.

Following the introduction, this publication describes the objectives of the Kentucky Archaeological Registry, how a landowner can participate in the program, and the steps in the landowner contact/site registration process. Next, the results of the Kentucky Archaeological Registry's first two years of operation are discussed, and the Registry's successes are evaluated. Finally, the role landowner contact/site registration can play as part of a broader site protection and preservation program is discussed.

Introduction

Concern for the protection and preservation of archeological sites has been voiced for about as long as their destruction has occurred. The passage of the Antiquities Act of 1906, the National Historic Preservation Act of 1966, the Archaeological Resources Protection Act of 1979, and subsequent laws and regulations, as well as State antiquities laws and regulations, have made the protection and preservation of archeological sites a matter of public policy. Yet for the most part, these laws are directed at protecting sites located on Federal, State, county, and municipal property, or those sites threatened by destruction from State or federally licensed or permitted projects. Generally, archeological sites located on private land have not benefited from any programmatic site protection policy. The protection and preservation of these archeological sites rests almost entirely in the hands of private landowners.

One way to ensure that these sites are preserved and protected is for the lands on which they are located to be brought into public ownership or to be acquired "in fee" by preservation groups. That is, all rights to such property are acquired (Ford 1983; Hoose 1981:26-27). While site acquisition may afford the best protection in most cases, it is not always the most feasible approach. The limitations inherent in acquiring land, i.e., the large investments of time and money required, restrict the use of acquisition as a primary method of site protection and preservation to only a few sites.

The Nature Conservancy (TNC), an organization created to find, protect, and maintain the best examples of natural communities, ecosystems, and endangered species (The Nature Conservancy 1988:3), uses a number of techniques, in addition to land acquisition, in its successful efforts to preserve natural diversity. These techniques differ in the speed in which they are used, their cost, the strength of the protection they offer, the duration of the protection they offer, and the degree to which they restrict a deed (Hoose 1981:29). They include such techniques as arranging renewable management agreements or leases and negotiating conservation easements and deed restrictions. By using a variety of techniques, TNC has been able to accomplish its goal of natural areas protection, even when acquisition was not feasible. This has led to the protection and preservation of larger areas and more species than would have been possible through acquisition alone.

Landowner contact/site registration represents one of these techniques. It involves a fairly simple, straightforward approach to natural areas protection, predicated on the assumption that the landowner has an interest in the resource and will not purposely destroy it, and that the landowner will act as the resource's steward by virtue of the preservation commitment he or she is asked to make. Hoose (1981:35-68) describes this approach as "all carrot and no stick."

On the face of it, landowner contact/site registration appears to provide virtually no protection for the resource. In actuality, few cases of breach of commitment have occurred in the more established natural areas registries (Paul Carmony, personal communication 1987), and the species for

which the properties were registered have remained undisturbed. In addition, landowner contact/site registration has created opportunities, in many cases, to negotiate stronger protection for registered areas at a later date. Given the track record of the natural areas registries, it can be stated unequivocally that landowner contact/site registration is a successful preservation strategy that has led to the protection of many species that might otherwise have been destroyed (Carmony 1982, 1987, personal communication 1987).

Because of the proven effectiveness of landowner contact/site registration as a protection tool for natural areas, it seems likely that this technique also holds enormous potential for the protection and preservation of significant archeological sites. This seems especially true when one considers that the bottom line for both natural areas conservation and archeological site preservation is the same: preservation of the land.[1]

The Kentucky Archaeological Registry

The Kentucky Archaeological Registry (Registry), a program that involves landowners in the preservation and protection of Kentucky's significant archeological sites, was developed and implemented in 1987. The preservation of sites on private property was especially targeted during the Registry's first two years of operation due to the lack of legal protection available for such sites.

The purpose of the Registry is to secure the protection of land that contains important archeological sites. Each landowner is informed and educated about the significance of the archeological site he or she owns, and the landowner's aid is enlisted in the site's protection and preservation. The goal is to encourage the landowner to make a conscious, voluntary commitment to protect his or her site, which leads to voluntary stewardship of the site.

The Registry was created as the result of a unique cooperative effort between two State agencies. The Kentucky Heritage Council (KHC), which serves as the State Historic Preservation Office (SHPO), had sought to develop a program of long-term site protection for Kentucky's significant archeological sites, but lacked the requisite expertise. The Kentucky State Nature Preserves Commission (KSNPC), the agency responsible for administration and management of State nature preserves, had developed this expertise within the context of its comprehensive program of land preservation. This program consists of the Kentucky Natural Areas Registry, an array of land preservation tools and legal options, and the stewardship and management of acquired properties.

At KHC's request, KSNPC agreed to develop and implement a site protection strategy for significant archeological sites modeled on the Kentucky Natural Areas Registry (Henderson 1988b:11-14). Funding for the Registry's first two years was provided by Federal Historic Preservation Fund survey and planning grants. The Registry was developed and administered during that time by an archeologist hired by KSNPC. With the title of Registry Coordinator (Coordinator), this archeologist worked closely with the staff of KHC. Personnel for the program included primarily the Coordinator and a part-time secretary. The costs for developing and implementing the Registry for the two years included $36,127 for personnel and $7,378 for operations, prorated for the actual time spent on activities. The average cost per year was calculated at $21,753. This was less than Hoose's (1984:5-6) estimate of $35,000 per year for a full-time Coordinator once program initiation had been completed.

After the first two years of operation and at the conclusion of the grants, the Registry program was transferred to KHC and became a permanent element of the archeological site protection program. Administrative duties, secretarial services, and the job of Coordinator are now conducted by KHC personnel in addition to their other responsibilities. The costs of the Registry have been absorbed by KHC into its existing budget, and no new expenditures have been made.

Person-to-person contact and the development of a relationship between the Coordinator and the landowner, based upon mutual respect and trust, are major elements of the Registry program. This personalized contact solidifies the landowner's commitment to protect the land. Careful planning and the development of information that thoroughly documents the site are also elements of the program. This ensures that only the most significant and most worthy sites are considered, thereby conferring a high degree of integrity on the program.

Objectives in registering archeological sites are the same as those of the natural areas registry programs. These can be summarized by paraphrasing the objectives outlined in the TNC Midwest Regional Office *Guidelines for Registry Workers* (The Nature Conservancy, Midwest Regional Office 1985:2).

- To provide landowners information that prevents the unintentional or accidental destruction of archeological sites, including educating landowners about the significance of their sites and the lifeways of the people who once lived there;
- To understand landowners' attitudes toward their properties and the sites found thereon;
- To instill landowners with a sense that their land is special, and that they are special people for taking care of these sites;
- To acknowledge that in many cases--when most of the surrounding sites have been destroyed or degraded--their sites remain only because they have taken deliberate protective measures;
- To instill landowners with a sense of responsibility, at least for monitoring their sites; and
- To establish a cordial, personal relationship between each landowner and the Coordinator that will insure that archeological sites are protected in private ownership.

The foundation for preservation and protection provided by the Registry is the preservation commitment made by each landowner. Participants are asked to honor three requests:

1. To preserve and protect their sites to the best of their abilities;

2. To notify KHC of any threats to the site such as looting, vandalism, proposed construction, excavation, or any other ground disturbing activities; and

3. To notify KHC of any intent to sell or transfer ownership.

Because the preservation commitment is made only between the current owner and KHC, it does not "run with the land." The preservation agreement must be negotiated anew when the property is sold and a new landowner controls the site. This is the reason why the landowner is requested to provide new information when the property is sold or when ownership is transferred.

KHC for its part, agrees to the following:

1. To provide site management assistance; and

2. To provide, upon request, aid to the landowner in selecting the most appropriate tools for stronger site protection.

A landowner can participate in the Registry in one of two ways: by verbally agreeing to protect the site, or by signing a non-binding Registry Agreement (Figure 1). The landowner's preservation commitment is recognized through the presentation of awards, commensurate with his or her level of participation. A certificate (Figure 2), signed by the Governor of Kentucky and the Chairman of KHC is presented for a verbal agreement. A certificate and a plaque (Figure 3) are presented when a Registry Agreement is signed. In both cases, the sites are designated Kentucky Archaeological Landmarks. A landowner's name also is added to the KHC's mailing list, and every two months he or she receives KHC's preservation newsletter, which includes a section about the Registry. The landowner also receives copies of the Registry newsletter, prepared annually by the Coordinator, and the *Kentucky Archaeological Newsletter*, prepared three times a year by the Program for Cultural Assessment at the University of Kentucky in Lexington.

This is to certify that

owned by

is a registered

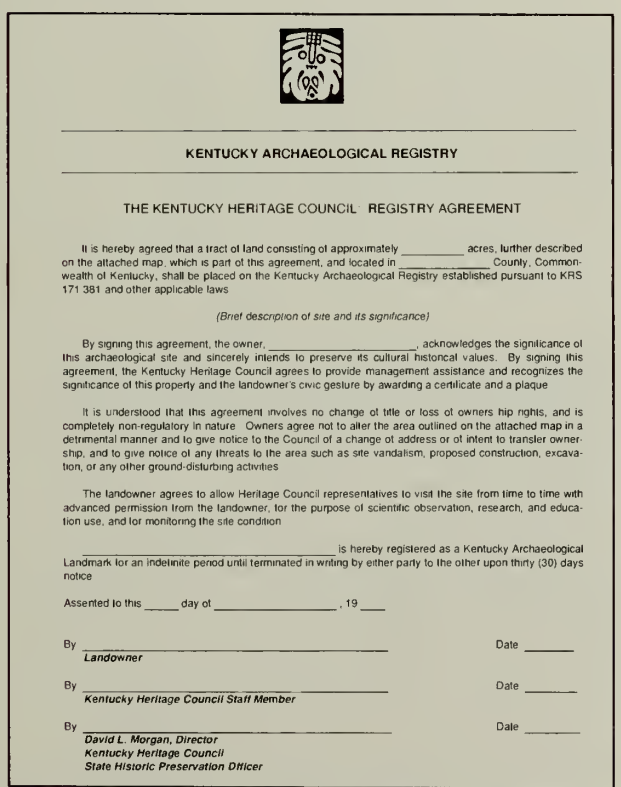
Kentucky Archaeological Landmark

GOVERNOR OF THE COMMONWEALTH

CHAIRMAN, KENTUCKY HERITAGE COUNCIL

This owner is preserving this site as a significant part of Kentucky's cultural heritage

Figure 2. Kentucky Archaeological Registry Certificate. (Courtesy of the Registry)



KENTUCKY ARCHAEOLOGICAL REGISTRY

THE KENTUCKY HERITAGE COUNCIL REGISTRY AGREEMENT

It is hereby agreed that a tract of land consisting of approximately _____ acres, further described on the attached map, which is part of this agreement, and located in _____ County, Commonwealth of Kentucky, shall be placed on the Kentucky Archaeological Registry established pursuant to KRS 171.381 and other applicable laws

(Brief description of site and its significance)

By signing this agreement, the owner, _____, acknowledges the significance of this archaeological site and sincerely intends to preserve its cultural historical values. By signing this agreement, the Kentucky Heritage Council agrees to provide management assistance and recognizes the significance of this property and the landowner's civic gesture by awarding a certificate and a plaque

It is understood that this agreement involves no change of title or loss of owners hip rights, and is completely non-regulatory in nature. Owners agree not to alter the area outlined on the attached map in a detrimental manner and to give notice to the Council of a change of address or of intent to transfer ownership, and to give notice of any threats to the area such as site vandalism, proposed construction, excavation, or any other ground-disturbing activities

The landowner agrees to allow Heritage Council representatives to visit the site from time to time with advanced permission from the landowner, for the purpose of scientific observation, research, and education use, and for monitoring the site condition

_____ is hereby registered as a Kentucky Archaeological Landmark for an indefinite period until terminated in writing by either party to the other upon thirty (30) days notice

Assented to this _____ day of _____, 19___

By _____ Date _____
Landowner

By _____ Date _____
Kentucky Heritage Council Staff Member

By _____ Date _____
David L. Morgan, Director
Kentucky Heritage Council
State Historic Preservation Officer

Figure 1. Fascimile of the Registry Agreement.

Figure 3. Mrs. Nita M. Cropper, Registry landowner, holding a Registry Plaque. (Photo courtesy of David Pollack)

Steps in the Registration Process

The process of landowner contact/site registration follows a series of prescribed steps designed to collect all pertinent information about the site, the property, and its owner before the landowner is contacted, and to accurately document the results of any contacts and communication. Henderson (1988a, 1988b) discusses the development and implementation of the Registry in more detail, with example handouts, forms, awards, and letters provided in appendices. Figure 4 depicts graphically the steps in the landowner contact/site registration process.

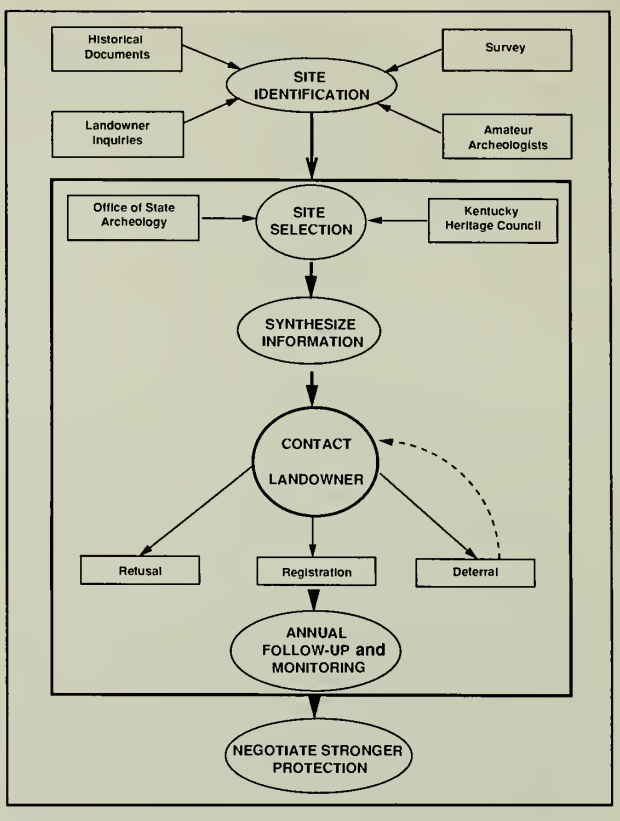


Figure 4. Flow chart of landowner contact/site registration activities. (Courtesy of the Registry)

Site Selection

The integrity of any landowner contact/registry program, and therefore its effectiveness as a preservation tool, is directly related to the integrity of the sites selected for preservation (Carmony 1982:4; Hoose 1981:59). Therefore, before a site is considered for registration, it must have been identified, located, recorded, and evaluated for its significance.

To be considered for registration, a site should be clearly significant. A site's significance is most commonly evaluated according to the criteria for listing in the National Register of Historic Places, which includes examination of site integrity and potential to address important research questions. Other factors, in addition to those based upon National Register criteria, can and should be considered when selecting a site for registration. These include, for example, the site's cultural affiliation, physiographic setting, or the potential for threats to its preservation, as from vandalism, erosion, or development.

The first sites chosen for registration were selected from a master list of potential sites compiled from suggestions by Kentucky's archeological community-at-large (Henderson 1988b:21-25). Registry site candidates, selected from this master list by KHC and the Coordinator, met two general significance criteria:

1. They had contributed to or had the potential to contribute to an understanding of Kentucky's prehistoric and/or historic past; and

2. They were in a good state of preservation.

Pre-Initial Visit Activities

These activities consist of creating Registry Site Files (Site Files), initiating contact with landowners, and developing the Landowner Site Packet. Development of the Site Files includes collecting and synthesizing information about each site and its landowner. This includes gathering information about the environmental and archeological aspects of the site, the site's significance, known threats, current information about the landowner and the property on which the site is located, and landowner attitudes concerning the site and its preservation. This is accomplished by reviewing all available printed matter regarding the site, such as reports and papers, as well as previous correspondence, such as letters from landowners, newspaper clippings, and compliance review letters. Information about the site and its landowner is solicited from individuals who may have opinions about the site's preservation, protection, and management needs, and who may know the landowner or something about his or her attitudes toward preservation. These people include avocational and professional archeologists and adjacent landowners. The archeologist who has been most involved in research at the site, referred to as the Archaeologist of Record (AOR), may be the single most helpful source of information about the site. The AOR has the advantage of knowing the landowner, the site, and their common histories in more detail than most other informants.

Rosters of all Registry contacts with the landowner are kept in the Site Files, one for each landowner/site combination. The Site File contains copies of all correspondence, telephone notes, and other information. Specific management and stewardship considerations for the site outlined prior to the Initial Visit are included in the file.

The Landowner Site Packet, which is left with the landowner at the end of the Initial Visit, is an individualized collection of information. It contains general information about the program, specific information about the site and, where warranted, information about other archeological topics. It also contains the Registry Agreement (Figure 1). This agreement consists of a topographic map with the site boundaries and the landowner boundaries outlined on it, a cover page that briefly describes the site, its significance, and the preservation commitment the landowner is being asked to

make. The Landowner Site Packet is used to illustrate and clarify aspects about the Registry program. It functions to educate the landowner about the site and its significance.

The landowner is contacted twice before the Initial Visit takes place. The first contact is by mail. A brief descriptive statement about the program is included in the letter, accompanied by brochures that summarize the Registry program and outline Kentucky prehistory. Next, the landowner is contacted by telephone to set up an appointment for the Initial Visit.

The Initial Visit

The Initial Visit is the focal point of the landowner contact/ site registration process. During this visit, the Registry program is explained in detail within the context of discussing the site and its importance. Stewardship activities the landowner may have undertaken in the past, as well as the appropriate activities the landowner should continue to follow, are discussed.

During the Initial Visit, the foundation is laid for establishing the landowner's preservation commitment and his or her long-term relationship with the Registry. One of the purposes of the Registry is to educate the landowner about his or her site: how old it is; who were its inhabitants, what they wore, and how they lived; identification of artifacts and their methods of manufacture; and its significance. In addition to this site information, the Initial Visit allows the Coordinator to collect information about the landowner and his or her family, the site's history of use, and the types of threats it faced in the past.

Some landowners decide to participate in the program and sign the Registry Agreement during the Initial Visit. Others wish to think it over and discuss it with family members.[2] The Coordinator determines whether a verbal registration has been secured. In most cases, the landowner will not promise to preserve and protect the site in those exact words. But if the landowner is sincere and interested, then a verbal registration is considered to have been secured.

Post-Initial Visit Activities

Many of the activities that take place after the Initial Visit depend on its results. A few activities, however, take place immediately after each visit irrespective of the landowner's decision regarding site registration. They fall into two categories, recording information and communicating with the landowner.

A number of different kinds of information, recorded and kept on file in the Site File, are collected during the Initial Visit. This information is critically important to future contacts with the landowner because it serves as a baseline from which to monitor the site's condition on subsequent visits and can provide insight into the stronger protection options that might be most appropriate should the landowner request them.

A report of the Initial Visit itself is prepared. This includes a description of activities during the visit, the Coordinator's feelings about the landowner's receptiveness to the program and perspective on site preservation, the results of the visit, and the topics discussed. Facts gathered about the landowner, such as his or her level of education, economic situation, details about his or her life and family, perspectives about the site and site preservation, are summarized in a separate report. Information detailing the condition of the site, including its location and degree of any looting and vandalism or ground disturbance, is noted on the Site Monitoring Record.

As soon as possible after the Initial Visit, a thank-you letter is sent to the landowner regardless of his or her response to the program. If the landowner expressed interest in learning about other protection options this information is included (cf. Milne 1984). If the landowner agreed to participate in the program, the letter mentions the awards the landowner will receive and reiterates the agreement he or she made. A number of additional activities are undertaken. The most important of these is the preparation of the awards. Announcement of the registration in the newspaper or other media depends upon the landowner's permission, the site's history of notoriety, its state of preservation, and threats of looting and vandalism. Press releases are written only with the landowner's permission and only for sites that are not at a high risk of looting and vandalism.

Other tasks are carried out soon after the Initial Visit, especially if the landowner has agreed to participate in the program. His or her name is added to the various mailing lists, the Registry newsletter mailing list, KHC's preservation mailing list, and *Kentucky Archaeological Newsletter* mailing list. A photocopy of the Registry Agreement, if it was signed, is sent to the landowner. About a month later the SHPO/ Director of KHC sends a letter to the landowner in which he or she personally expresses appreciation for the landowner's decision to participate.

If the landowner did not agree to participate during the course of the Initial Visit but wished to think it over, the thank-you letter is followed by a telephone call within a month. If the answer then is "yes," the activities discussed above are carried out. A thank-you letter is sent after the Initial Visit even if the landowner is clearly not interested in participating in the program. Depending on the nature of the landowner's negative response, the immediacy of threats to the site, and the significance of the site, an attempt to contact the landowner again in six months or a year to reconsider the decision may be appropriate.

Registry Maintenance Activities

Upon the designation of an archeological site as a Kentucky Archaeological Landmark, a long-term commitment to the site and its landowner begins. Participation in the Registry provides an opportunity to establish a relationship with the landowner. In the years that follow it is hoped that the landowner's interest in the protection and preservation of the site will grow by virtue of this participation. As a result of this greater interest, opportunities for stronger protection may develop in the future.

Registry follow-up and maintenance activities are critically important to the landowner contact/site registration process (Hoose 1981:56). Landowner contact/site registration can be considered a successful site preservation option only if the relationship with the landowner begun during the Initial Visit is nurtured.

Without a good follow-up system to remind owners of the importance of their areas (sites) and help them develop a firmer preservation ethic, its (the Registry program's) value could decline rapidly (Carmony 1987:4).

In effect, then, the easy part of landowner contact/site registration is the registration itself. The hardest part is staying in touch with each landowner.

Registry follow-up and maintenance consists of communicating with the landowner, educating him or her about the importance of protecting the site, and monitoring the condition of the site at regular intervals. The goals of follow-up and maintenance activities at registered sites consist of the following:

- Enhancing and continuing to build a relationship with the landowner;
- Educating the landowner about the site and its preservation;
- Providing site management support and site protection information; and
- Monitoring the site for any disturbance or new threats to its protection.

Frequent and personal communication with the landowner throughout the year is the primary way by which the relationship with the landowner is enhanced. This includes sending letters, notes or cards, preparing and sending the Registry newsletter, and visiting the landowner in person. The Registry newsletter is an excellent means of maintaining communication with the participating landowners while simultaneously informing and educating them. Receipt of the newsletter reminds landowners of their participation in the program, the agreement they have made, and the significance of their preservation commitment. It is used to report on recent program accomplishments and announce conferences, meetings, or publications of interest to the landowner. It provides information about prehistory or history, site management, site looting and vandalism, and stronger protection options.

The single most effective follow-up activity, however, is the annual Follow-up Visit. The Follow-up Visit is the way in which landowner communication and education is carried out. The Follow-up Visit provides the Coordinator with an opportunity to discuss site protection and to monitor the site's condition. The same landowner contact procedure for the Initial Visit is followed prior to the Follow-up Visit (Henderson 1988a:3-5). Each landowner is telephoned, and the Follow-up Visit is scheduled. Care is taken to explain the purpose of the Visit to allay any concerns landowners might have that an additional request will be made of them. Prior to the Follow-up Visit, the Coordinator reviews each Site File to be familiar with the important facts. Information still promised to a landowner is prepared. Information still lacking in the Site Files is noted so that it can be collected during the Visit.

Gifts are always brought to the landowner on the Follow-up Visit. These consist of such items as posters, articles, pamphlets, or copies of recent legislation that deals with archeological sites. They serve several functions: (1) they provide an obvious reason for visiting the landowner and not just his or her site; (2) they provide an opportunity to demonstrate once again appreciation for the landowner's preservation commitment; and (3) they represent a way to educate landowners about archeology.

Another important function of the Follow-up Visit, is to provide an opportunity to monitor the site's preservation status. During the Follow-up Visit, questions are always asked about the site, its condition, and any problems with looting and/or vandalism the landowner may have had in the course of the year. If at all possible, the site is visited in the company of the landowner and site stewardship activities are discussed. Information is collected about features of the site locale, locations of current and previous human and natural destruction, and site boundaries.

Activities conducted after the Follow-up Visit resemble those undertaken after the Initial Visit and consist of landowner communication and documentation. A note is sent to the landowner thanking him or her for spending time with the Coordinator. A note also is sent to the AOR, if one exists for the site, informing him or her of the Follow-up Visit and providing updated information about the landowner, his or her family, and the site's condition.

A Follow-up Visit report is prepared, information about each landowner is recorded and, if need be, changed in the Site File, and a Site Monitoring Record Update is completed that includes any changes noted in the site's preservation status. Once sufficient information is collected regarding the site's management needs, and this may have to be collected over the course of several years, a detailed site management plan is prepared for each site and discussed with the landowner (Henderson and Hannan 1988:34-40).

Results of the Kentucky Archaeological Registry To Date

The results of landowner contact/site registration activities undertaken during the Registry's first two years of operation were very positive. A total of 16 landowners out of 30 contacted agreed to participate during Year One. Three landowners declined to participate, eight deferred site registration, and for three landowners site registration activities were incomplete. Two additional landowners were contacted during Year Two and agreed to participate. One of the landowners who deferred in Year One chose to participate during Year Two. This resulted in a combined total of 19 participating landowners out of the 32 who were contacted in

person by the Coordinator during Year One and Year Two. Sixteen landowners agreed to participate by signing a Registry Agreement while the remaining three gave verbal consent to program participation.

The 19 Registry entries represent registration for 19 archeological sites totaling 300 acres. Eighteen sites were registered during Year One, while one new site was registered during Year Two. Registration for 15 of these sites encompasses the entire site area, while four of the registries cover only a portion of the site. These partial registries, in most cases, represent over one-third to three-fourths of the site. Site types registered include earthen enclosures, a ditched enclosure, burial mounds (Figure 5), villages, temple mound and village complexes, a stone alignment, and a rockshelter. Cultural components at these sites include prehistoric sites with either single or multicomponent deposits, as well as one site with an early historic component.

Figure 5. Located on the property of Mrs. Ann H. Gay, this mound is listed in the Registry. (Photo courtesy of David Pollack)

The condition of 16 of the 18 sites registered during the program's first year of operation remained unchanged during the second year of operation. Notable alterations occurred to only two of these sites and to the newly registered site. This resulted in a total of three registered sites at which conditions had changed between the Initial Visit and the Follow-up Visit. Changes at two had occurred due to a change in land use. At one site the land use varied because the property was sold. Timber had been removed in some areas, while in others, the site was disked and sown with grass for pasture. At the other site, a road built to haul timber had been constructed by a third party in the site area, contrary to the landowner's instructions. Disturbance to these two sites was minimal. Changes at the third had occurred as a result of vandalism, which, while substantial, did not significantly alter the site's integrity.

During the Registry's first year of operation, five requests were received for information about stronger site protection, including easements, site donation and purchase, and site management (Henderson 1988a:7-10 and 1988b:57-58). They were solicited by three landowners who decided to participate in the program and by two who deferred. One new request for stronger site protection was received from a participating landowner during the Registry's second year of operation.

In response to these requests, information was prepared and sent to the landowners, the landowners were visited again, and options available to them were discussed. More detailed information about property boundaries also was collected, and the landowners' requests were discussed with KHC as well as with potentially interested third parties such as The Archaeological Conservancy, a private archeological site preservation organization (Ford 1983), and the University of Kentucky. To date, protection beyond site registration has not been negotiated for these sites.

The request for aid in site management, unlike the requests for stronger site protection, was handled in a different manner. Through discussions with the media relations manager of the corporation that owns a registered site, it became clear that the company was interested in receiving information that would help it manage the site more effectively. Serving as a clearinghouse, the Coordinator sought aid from the archeological community in honoring this request. A graduate student at the University of Kentucky volunteered to provide the requested information. The site was mapped, tested, and a detailed management study was prepared (Sanders 1988). As a result of this project, the company was provided with the management assistance it needed.[3]

More in-depth discussion of the program's results, as well as the characteristics of the Registry sites and their landowners, is provided in Henderson (1988a:2-11 and 1988b:43-70).

Program Evaluation

Landowner contact/site registration has been proven to be effective in the protection and preservation of natural areas since 1980 (Hoose 1984:7). The results of the Registry's first two years of operation are comparable to the results of the natural areas registry programs (Carmony 1982, 1987) and demonstrate that the landowner contact/site registration technique can be successfully adapted to the protection of unique and irreplaceable archeological resources. Several factors can be cited as contributing to the success of the program.

One obvious reason is the fact that it is modeled upon TNC's successful registry program. By following this model, which has been field tested in many situations, the Registry placed itself in an excellent position to succeed.

The communication, trust, and rapport that develops between the landowner and the Coordinator is another factor that contributes to the Registry's success. Since the Registry program is personified by the Coordinator, the personality and attitude of the Coordinator can make or break a landowner contact/site registration program (Hoose 1984:6). The Coordinator must be able to communicate effectively with landowners in a non-threatening way about the program and their sites' importance and, therefore, convince them to make the commitment to preserve and protect their sites.

A third factor that contributes to the Registry's success is the existence of an AOR for a site. The concept of the AOR does

not have a counterpart in TNC's landowner contact/site registration formula. It became evident in the early stages of the Registry's development, however, that the chances for registration would be greater for sites at which professional archeologists had worked for many years and developed rapport with the landowners. The AOR often had considerable personal and professional investment in a site, concern for its future, and ideas on ways to preserve it. He or she previously may have discussed site preservation and management with the landowner. Given a role in the registration process, AORs proved to be an important source of support since their understanding and appreciation of the Registry, together with their positive attitude toward it, often helped allay landowners' misgivings.

Summary and Conclusion

The Registry provides a cost-effective, programmatic response to the problem of long-term protection and preservation of significant archeological sites on private property. It encourages the preservation and protection of Kentucky's significant archeological sites by enlisting the aid of landowners in their preservation. Its major functions include the following:

1. To provide low-level site protection;

2. To provide opportunities for regular and systematic monitoring of significant sites; and

3. To provide opportunities to educate participating landowners about the importance and the preservation of their sites.

As a result of the activities undertaken during the first two years of operation, it was demonstrated that the Registry also can serve other purposes. For instance, it can help nurture a constituency concerned about general issues in site protection and preservation. During Year Two, for instance, landowners were informed of looting that had occurred to a site in western Kentucky. They were asked to write to the County Attorney to express their concern about the site's destruction. Many landowners previously had had similar experiences with looting on their sites and had felt powerless to do much about it. It was decided that this incident presented an opportunity for the landowners to do something about their frustration. As owners of Kentucky Archaeological Landmarks, they were in a unique position to tell officials that site looting is not a rare or isolated occurrence in the State. Four of the landowners sent letters.

Another function the Registry can serve is that of renewing or piquing archeologists' interest in studying these important sites. Archeologists were made aware that some sites considered to have been destroyed actually exist in a good state of preservation even after having been forgotten for decades. Some of these archeologists have expressed serious interest in pursuing research activities at Registry sites. When archeologists begin to plan such studies, the Registry will provide them with current site information and suggestions on the kinds of information needed about the site, as well as information about the landowner and the landowner's position regarding conducting research at the site. Archeologists contemplating such work will have to obtain the landowner's permission to conduct any field work.

The Registry can facilitate communication between the landowner and parties interested in negotiating stronger site protection. The Registry program can introduce groups, such as The Archaeological Conservancy, to interested landowners and provide information to these groups that might enhance their opportunity to acquire significant sites (Henderson 1988a:12).

Hoose (1984:1), however, considers a landowner contact/site registration program to be most useful as the primary level within a system of protection tools. In some situations stronger site protection, such as management leases, deed restrictions, conservation easements, or dedications (Henderson 1988b:71-81; Henderson and Hannan 1988) are required to ensure adequate protection of the property. In this case the Registry also serves as a screening device for sites and situations that might combine to produce opportunities for stronger and more enduring site protection. As discussed previously, six such instances of requests for information on stronger site protection and management were encountered during the Registry's first two years of operation.

The site protection provided by landowners who participate in the Registry illustrates the preservation potential that exists in a generally untapped resource: the landowner. Landowners serving as voluntary site stewards will help to ensure that Kentucky's most significant sites will be preserved and protected for the future.

The success of the Registry to date has struck a cord with many of the landowners who have been contacted during its short existence. As a positive approach to site protection, the Registry also has struck a cord with archeologists (Henderson 1988a:13-14). There appears to be an increasing awareness on the part of archeologists of the need to become involved in and develop methods of site protection and preservation in addition to those commonly used in the past. Hand in hand with this growing awareness is the acknowledgment that archeologists must provide the public with better access to information acquired through archeological research. Archeologists see in the Registry a way to respond to both needs in a cost-effective, positive way, and its success should encourage other States to develop registries of their own. The creation of the Registry seems to be riding the crest of a wave in American archeology that recognizes that public involvement in archeology is the best way to ensure there is archeology in our future.

For more information about the Kentucky Archaeological Registry, contact:

Kentucky Heritage Council
677 Comanche Trail
Frankfort, KY 40601
(502) 564-7005.

Copies of *The Kentucky Archaeological Registry: Citizen-based Preservation for Kentucky's Archaeological Sites* and *Results of the Kentucky Archaeological Registry Program's Second Year of Operation* by A. Gwynn Henderson, which describe respectively the Registry's first and second years of operation, are available from KHC at the above address.

Notes

[1] Surprisingly few landowner contact/site registration programs had been incorporated into the archeological community's approach to site preservation prior to the creation of the Registry. None had been patterned on TNC's landowner contact/site registration model.

During development of the Registry, a site protection questionnaire was sent to all 56 SHPOs (Henderson 1988b:22-23). From the 33 responses received, it was learned that 15 States have some form of archeological registry program "on their books." Some States had not implemented their registry programs due to a lack of success in the past or a lack of personnel and funds. Other programs depend on the initiative of the private landowner for site registration. Several mirror the National Register of Historic Places by providing protection under a State "Section 106" compliance process. None of these programs, however, is composed of the same elements embodied within the landowner contact/site registration program that is the Registry.

[2] Many questions were raised about the National Register of Historic Places probably due to the similarity in the names of the two programs. Landowners whose sites were already listed in the National Register were sometimes puzzled when they were requested to participate in the Registry. Similarly, landowners who held misconceptions about the National Register often transferred these misconceptions to the Registry. When this occurred, the Coordinator tried to address these questions by contrasting the two programs. Some of the more important differences include the following:

1. National Register status applies to a site even after ownership changes. In the case of the Kentucky Archaeological Registry, the new landowner has to be contacted and asked to continue the preservation commitment made by the former owner;

2. Frequent personal contact with participating landowners is not an element of the National Register, but it is a major element of the Kentucky Archaeological Registry; and

3. National Register status is an element of Federal historic preservation law. Kentucky Archaeological Landmark status confers no legal protection under State laws.

Other differences between the two programs are discussed in Henderson (1988b:64-65).

Some questions that were occasionally raised dealt with the limitations to land use that participation in the Registry might engender. These included such questions as:

- Will I be able to construct buildings and fences where I choose, or will I have to get permission from KHC?

- Will participation affect my children's inheritance of the property?

- Will I need KHC's permission to sell my land and will KHC have a voice in deciding to whom I may sell?

- Will participation in the Registry affect the property value of my land?

- Will registration lead to increased or required visitation of my site?

Since registration of a site as a Kentucky Archaeological Landmark is completely voluntary, non-regulatory, and not legally binding, no limitations are placed on the landowner's use of the land or children's later use of the property. The request that the landowner notify KHC of an intent to transfer ownership is made simply to facilitate contact with the subsequent landowner to request continuation of the former owner's preservation commitment. It is unclear how registration of a site will affect property values, although the landowner could certainly use it to his or her advantage when negotiating a price for the property. No public visitation of a registered site is required for participation in the program.

Most questions raised by the landowners focused not on the Registry, its limitations, or stipulations, but rather on the site: How old was it? What kinds of people had lived there? Was this the only site like it in the State? The Registry Coordinator also was asked to identify artifacts in landowners' collections, to give names and dates, and to describe how they had been made.

One question never specifically raised was "So, what's in it for me?" In describing the program to the landowner, the Coordinator described benefits in anticipation of this unspoken question. They included some of the following (Henderson 1988b:63-64):

- Registration is a good thing because you get a feeling of personal satisfaction knowing you have preserved the past for the future;

- By registering your site, you receive recognition that you own something special and have done something special to preserve it;

- Registration offers you an opportunity to learn more about your site and your property; and

- Through registration, you gain membership in a select group of Kentucky landowners.

[3] Generally, requests for information about financial assistance, tax benefits, and legal advice have not been made. These kinds of requests might become more common as the Registry becomes established and if participating landowners choose to pursue stronger protection options for their sites.

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FEDERAL ARCHEOLOGICAL CONTRACTING:
Utilizing the Competitive Procurement Process

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U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

This technical brief outlines the Federal procurement process in archeology by emphasizing the utility and importance of the Request for Proposal (RFP) type of competitive procurement. While centering attention on Section C, the Scope of Work (SOW), important considerations in Sections F, H, L, and M are discussed also. Since one of the principal current issues in archeological contracting involves identifying and evaluating archeological properties according to criteria for eligibility to the National Register of Historic Places, it is important to determine what is "significant" in prehistory and history. It is shown that the RFP type of competitive procurement process can assist efforts to resolve the "significance" issue by providing or facilitating better and more innovative archeological investigations and reports. The proposal evaluation process is shown to be fundamental, requiring qualified evaluators and careful development and weighting of proposal evaluation criteria. The technical brief concludes with a brief statement on the importance of the key aspects of archeological contracting following contract award, including monitoring and peer review.

Introduction

This technical brief presents the Federal competitive procurement process as a guide for archeological contracting and (1) provides information on what needs to be in a competitive Request for Proposal (RFP) for archeological services; (2) describes what roles the various players have; and (3) outlines how contracts should be procured, evaluated, and administered so that the resultant product is understandable and useful. The overall objective for such guidance in contracting is to improve public benefit from governmental archeological activities, as stated in the Secretary of the Interior's report on the National Historic Preservation Act (Department of the Interior 1986). It has been recognized that benefits from improvements in archeological contracting will include any of the following: the long-term preservation of significant data or properties through listing on the National Register of Historic Places (NRHP) and other State-level registers; the interpretation of results through publications and public education activities during projects; the synthesis of project results with previous knowledge about the cultural past; and the provision of opportunities for public participation, enrichment, and education (Irwin-Williams and Fowler 1986:7-10, 29, 41-43, 51, 56, 61-64, 73-75, 88-91, 105-107). The following discussions can be viewed as a complement to, and to a limited extent, an update of the apropros presentations on the RFP contracting process contained in two U.S. Heritage Conservation and Recreation Service (HCRS) publications of the late 1970s: *Scholars as Managers and Scholars as Contractors*; and, in particular, the discussions in Butler (1979), IAS-Denver (1979), and Mayer-Oakes (1978; 1979).

Although these guidelines are directly applicable to the normal workloads, job elements, and concerns of agency staff archeologists responsible for archeological work as part of construction or development projects, **they should also be useful to non-archeologists whose duties encompass, or commonly include, archeological or historical resource management, compliance, and contracting.**

It is important to remember that additional and alternative procurement procedures such as Invitation for Bid (IFB) and Request for Quotes (RFQ) result in simple purchase orders and are also available to Federal agencies for cultural resource management work (Butler 1978; 1979). These alternative procedures have particular advantages and disadvantages, depending on agency's situational needs and time constraints. However, there are certain benefits and advantages inherent in the Request for Proposal (RFP) competitive proposal process, which will be highlighted throughout this technical brief.

The Problem

Section 110 of the National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.), requires Federal agency heads to locate all sites, buildings, districts, objects, and properties under their jurisdictions and to nominate to the National Register of Historic Places (NRHP) all those appearing to meet the criteria for listing. Section 106 of the National Historic Preservation Act (16 USC 470f) requires Federal agencies to take into account the effects of their undertakings on properties listed, or eligible for listing, on the NRHP. The regulations that define the criteria for eligibility for listing in the NRHP are found in 36 CFR Part 60.4.

In the attempt to follow these legal mandates, many Federal agencies rely on the contracting/procurement process to

provide the information needed for project planning and decision making. However, for the most part, they continue to struggle for an effective recipe for success in the arena of archeological contracting and procurement.

One of the principal problems in archeological contracting involves the generation of information necessary to determine which archeological sites appear to meet NRHP criteria. Criterion (d) in 36 CFR Part 60.4 recognizes "...sites...that have yielded, or may be likely to yield, information important in prehistory or history," and must be addressed in evaluating archeological properties. It is the lead Federal agency's responsibility to obtain and manage this information. However, the task of actually acquiring and utilizing this information is often assigned to an archeologist or cultural resource specialist who may or may not be a part of the agency's planning or project review network.

Too many archeological reports do not provide cultural resource managers and officials with the kinds of information they require to fulfill compliance responsibilities. Central to this point is that many archeologists do not understand the criteria of eligibility for the NRHP. Criterion (d), as it often has been applied, becomes so broad as to be all encompassing; and there are archeologists who want to protect and preserve everything without consideration of relative value or significance. These misunderstandings too often result in archeological reports and recommendations that are of little or no use to an agency trying to determine whether or not it has properties eligible for the NRHP to manage. Given these situations, it is perhaps not surprising that the misunderstanding of what is important and therefore "significant" in prehistory and history has been cited as one of the prime sources of problems for Federal agencies and State Historic Preservation Officers (SHPOs) in planning cultural resource work (Butler 1987).

Site significance and how it relates to the management/compliance process can be understood as a function of the NRHP criteria. "The key word in Criterion (d) is 'important.' Importance is based on the theoretical and substantive knowledge of the discipline--nothing more, nothing less; i.e., what we know and what we do not know" (Butler 1987: 820-821). In the application of Criterion (d) for a site to be recommended as eligible for the NRHP, it must be able to contribute to the theoretical and substantive knowledge of archeology. A justification for a recommendation of NRHP eligibility should state precisely what research issues can be addressed by investigation of the site, especially through reference to existing historic context documents; and it should outline the most pertinent and potentially fruitful avenues for analysis, comparison, synthesis, and contextual discussion of archeological materials. This should be a central concern or focus of the RFP in archeological contracting.

The Competitive Proposal Process

With some exceptions, procurements based on competitive proposals are essential in order to provide the Federal government with the best assurances of obtaining legally and professionally acceptable reports of archeological investigations. Proposals provide the Federal archeologist with an opportunity to ascertain whether an offeror (1) understands the project and its purposes, (2) is able to plan and organize a program to meet these purposes, and (3) can integrate the program with a realistic research design that is based on a thorough knowledge of relevant research.

The competitive proposal is a fertile ground for innovation and creativity in all facets of a project, particularly the research aspects. In public archeology it is necessary to find more efficient, practical, and economical ways to conduct surveys, evaluations, and data recoveries. Competitive proposals provide an opportunity to evaluate differing ideas, plans, and approaches for conducting an archeological investigation, rather than merely responding to a rigid work description or statement of work with a bottom line cost. With competitive procurement, there are greater opportunities for better and more innovative field techniques, strategies, and approaches.

PART I - THE SCHEDULE

Section	Title
A	Solicitation/contract form
B	Supplies or services and prices/costs
C	Description/specifications/work statement
D	Packaging and marking
E	Inspection and acceptance
F	Deliveries or performance
G	Contract administration data
H	Special contract requirements

PART II - CONTRACT CLAUSES

I	Contract Clauses

PART III - LIST OF DOCUMENTS, EXHIBITS, and OTHER ATTACHMENTS

J	List of attachments

PART IV - REPRESENTATIONS and INSTRUCTIONS

K	Representations, certifications, and other statements of offerors or quoters
L	Instructions, conditions, and notices to offerors or quoters
M	Evaluation factors for award

Figure 1. Uniform Contract Format (Federal Acquisition Regulation; see 48 CFR Part 1)

In the following discussion, it is shown how procurements are conducted on the basis of competitive proposals within the purview of the Federal Acquisition Regulation (FAR), "Contracting by Negotiation" (48 CFR Part 1). The solicitation for this type of contracting is the RFP. All phases of competitive contracting are important to the successful completion of a project, including the post-contract award monitoring of the field, laboratory, and report preparation phases. However, it is the procurement process itself, and preparation of the RFP in particular, that is critical to the eventual receipt of a final report of investigations that satisfies all legal requirements and is acceptable to the professional archeological community.

The FAR (48 CFR Part 1) requires the use of a uniform contract format for the solicitation or RFP in contracting by negotiation. An RFP is composed of 13 sections, A through M, in four parts (Figure 1). Many of the sections consist mainly of standard contract clauses, certifications, and instructions. Information may be added to these sections, some of which are mainly administrative and instructional in nature. However, five sections (C, F, H, L, and M) are very important. Section C, the "Description/specifications/work statement" or Scope of Work (SOW), stands out as the most crucial part of the RFP.

Section C: the Scope of Work

In almost every RFP, the descriptions presented in Section C are most critical for the successful completion of a project. **Because Section C details the SOW, it is the "heart and soul" of the solicitation document.** The careful and detailed preparation of the SOW is the best guarantee that a cultural resource project will satisfy legal requirements and meet professional standards. Development of this section places a great amount of responsibility on the agency archeologist or cultural resource specialist because the SOW will:

- define the project;
- specify what is required; and
- state the conditions under which the project will be conducted.

Although the uniform contract format (Figure 1) must be followed in assembling the RFP, there is no required arrangement for Section C. The precise nature of the project, its complexity, and any unusual circumstances surrounding the undertaking, should guide selection of the format used.

With time and the accumulated experience of agency archeologists and contracting officers, an agency's SOW can exhibit continual improvement, taking advantage of lessons learned from previous procurements. For instance, newly written RFP scopes of work should reflect recent advances in archeological method and theory, up-to-date archeological knowledge of the region, and current professional standards.

The following discussion presents recommendations and suggestions for topics to be addressed in Section C of the RFP.

Background Descriptions

An agency cannot expect to receive what it does not ask for, and neither can it expect to receive what it does not pay for. The agency archeologist or cultural resource specialist who prepares an RFP must have a thorough knowledge of that project's area and what is required to fulfill legal and regulatory responsibilities. Thus, the agency archeologist must conduct a background search that involves:

(1) consulting existing planning documents (including State Historic Preservation Plans, Federal agency plans, and historic contexts documents developed for managerial purposes by States, counties, municipalities, transportation departments, private utility companies, and certified local governments) (for an example, see Anderson, et al 1989);

(2) determining if the area has been subjected to survey in the past, and whether the previous work meets current professional standards; and

(3) identifying the locations of any archeological sites or historic properties previously recorded.

Unless the agency archeologist is thoroughly familiar with the project area, an on-the-ground inspection will be necessary. This inspection will serve to reveal any areas that may not require intensive survey, such as disturbed and developed locations (e.g., airport runways and ramps, roads, and buildings). If previously unrecorded sites are discovered during inspection of the project area, the archeologist should, if possible, record and evaluate these sites. In any event, the archeologist must obtain sufficient information to determine:

(1) the minimum amount of investigation that will be required to satisfy legal responsibilities and meet professional standards;

(2) a project strategy sufficient to accomplish the work; and

(3) how much it will cost.

Section C of the RFP should present introductory material including which legal and regulatory authorities the project is designed to satisfy. It should alert offerors to the nature of the investigation and the kinds of information that the agency must have to address the pertinent laws and regulations. The "Introduction" or "Background Statement" should briefly summarize the major goals of the investigation and cite the

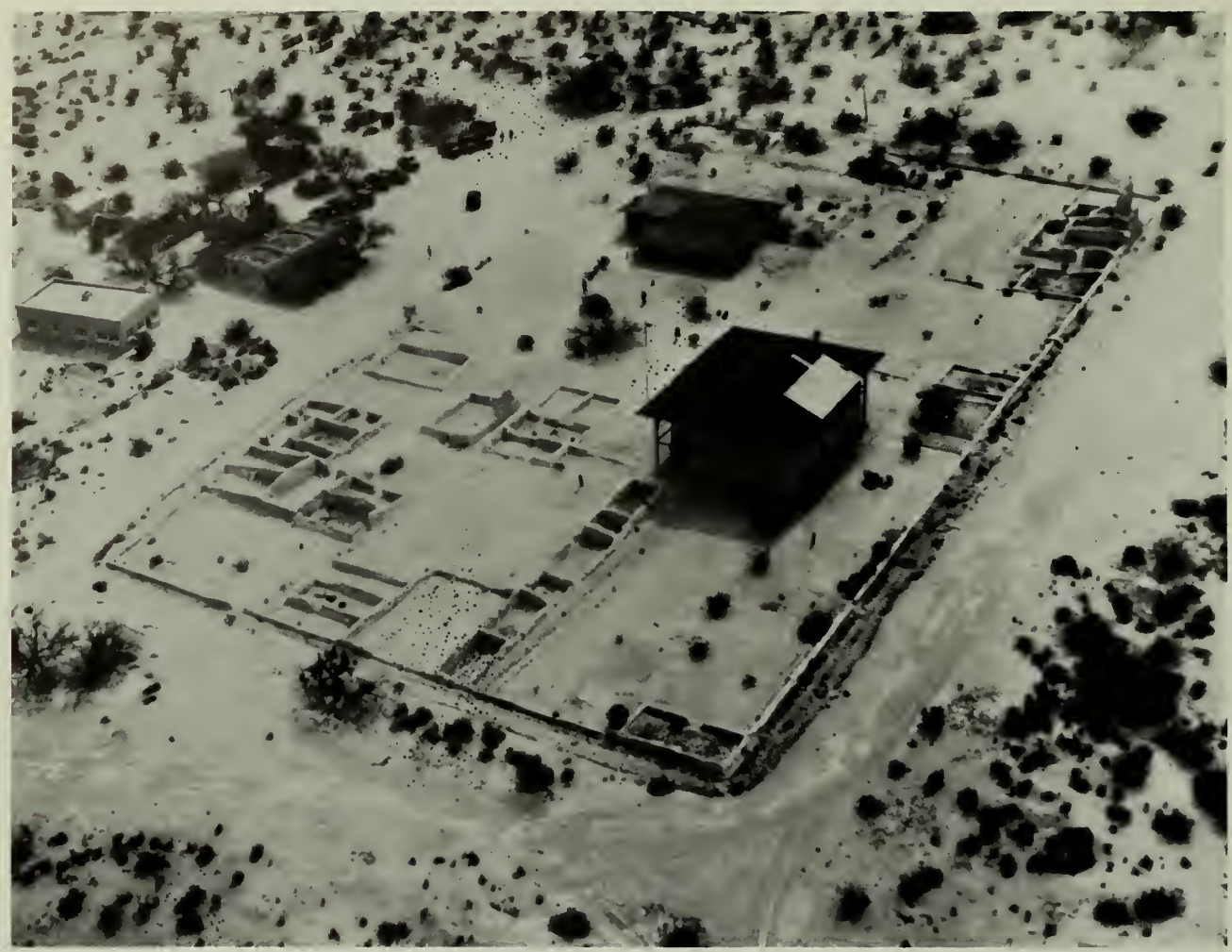


Figure 2. 1920s Aerial view of Casa Grande National Monument, AZ. The importance, in the public interest, of long-term preservation for significant archeological sites was recognized more than 100 years ago when Casa Grande Ruin became the first national archeological preserve. The demand for both interpretation and protection resulted in Federal laws and programs to systematized access for research purposes as well as prevent looting and vandalism. This rare 1920s aerial view of Casa Grande shows the principal village site and visitors' autos. (All photos are from the NPS collection at the Graphics Research Branch , Harper's Ferry Center.)

source of funding, informing prospective offerors of the administrative structure of the project.

Section C also should contain detailed directional information to guide offerors to the project area. The boundaries of the project area should be specified, especially if the project is located within a larger organizational unit such as a military installation. The directional information presented should be sufficient to inform offerors of any unusual circumstances or difficulties in reaching and/or conducting a project. The directional information in Section C is supplemental to the directional information provided by a location map in Section J (Figure 1). For example, access to the project area may require unusual amounts of travel by various modes to isolated areas, which will consume large amounts of time. Unless such situations are presented clearly with sufficient detail, offerors will be unable to calculate time and travel costs accurately. A discerning offeror may, in fact, object to an insufficiently detailed RFP, which can result in issuance of a new or revised solicitation with consequent delays in implementing the project. At worst, protests could result, with consequent increases in project costs and innumerable time delays.

Section C should contain a summary of the principal goals of a project. For example, the main objectives of a survey usually would be to discover all cultural resources in a project area, evaluate the discovered sites and properties for NRHP eligibility, and provide recommendations for evaluative testing of selected sites should additional information be needed. These goals would be expressed in greater detail in other sections of the RFP, but their early introduction "sets the stage" for a project and reinforces any introductory statements on legal authorities and project purposes and requirements.

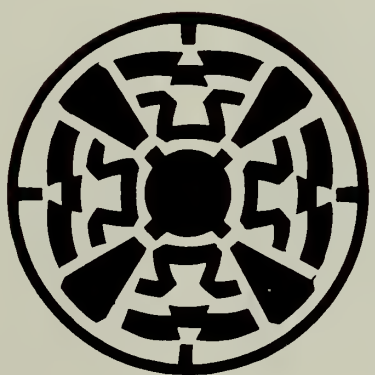
Frequently, the project area addressed in an RFP will have been the subject of one or more previous cultural resource investigations involving previous procurements. The new project might be the evaluative testing of archeological sites

discovered during the initial survey of the project area. All or a portion of the project lands may have been surveyed previously. Whatever the circumstances, all previous investigations on the property should be summarized in the RFP, and the resulting reports must be made readily available to offerors for preparation of their proposals, particularly if the new work is based directly upon earlier investigations. Whenever possible, relevant reports should be included in the RFP as exhibits. If this is not practical, the information should be provided by other means. If reports of earlier investigations have been distributed widely to libraries, a bibliographic citation may be sufficient. Copies of relevant reports can be made available for inspection at the contracting agency and other offices. Caution should be exercised, however, in not unduly restricting competition by limiting access to information. Quality competitive proposals are the goal of the procurement, and information made available to the widest possible audience is essential to this goal.

The Research Design

Following presentation of the archeological and historical background of a project, an RFP must address research design. Work oriented toward expressly stated research goals is exactly what must be done in order to provide Federal agencies with the information they need to discharge cultural resource compliance responsibilities. An RFP should include every requirement necessary to place an agency in full compliance and describe how these requirements are to be satisfied (McGimsey and Davis 1977:72-73; Mayer-Oakes 1978:72-93; Butler 1979:27-34).

The topic of "Research Design" also has direct bearing on the problems surrounding the misunderstanding of the meaning of significance and NRHP eligibility evaluations. In order to effect NRHP eligibility evaluations, a SOW must require that a project be conducted within the framework of a relevant, professionally acceptable research design. A SOW may suggest or require specific research topics to be addressed by a project. However, offerors should be required to provide additional research topics relevant to past and ongoing research in the area that are realistic in terms of the type and scope of that project, including those topics that accurately reflect the potential of archeological information and material to be recovered. This provides an agency an opportunity to judge how well offerors have familiarized themselves with relevant background and research information and their abilities to develop appropriate research topics from the existing data base.



Notwithstanding the above discussion, archeologists and cultural resource specialists should be careful to avoid placing undue restrictions on research design and field methods. Allowance should be made for the necessity to change or evolve the research design or field methods in response to new data and conditions. To this end, a contractor should be afforded as much flexibility as possible within the practical limits of project goals and objectives.

It is strongly recommended that the proposed research design and work plan be submitted in draft to the appropriate SHPO for review and concurrence:

*The role of the SHPO is to **consult with and assist** the Agency Official when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or reduce those effects (emphasis added) (36CFR Part 00.1.[c][1][ii]).*

While SHPOs do not enter into agency cost estimating or cost discussions, their comments on the adequacy of proposed investigations nay reveal deficiencies or omissions in research strategies or methods. A fully informed and cooperating SHPO can provide constructive criticism, aid in the identification of local and regional issues or concerns, and administrative and political support for a project that can head off or prevent misunderstandings.

Public Education Activities

It is recommended that each RFP require public education activities as part of the work plan. Such activities might include public displays, lectures, brochures, tours, school programs, and/or volunteer opportunities as part of the archeological investigation.

Cost Estimates

Following the SHPO's concurrence with a proposed project research design and SOW, the agency archeologist can take direct steps to eliminate another of the common criticisms concerning federally sponsored archeological projects and reports: the estimation of project costs.

Estimated costs should be an accurate reflection of the required levels of labor, equipment, per diem, and travel necessary to provide sufficient information and products to meet the goals of a project. This would include not only the cost of conducting the on-the-ground survey, but also the costs of materials analyses, data recovery, and curation of collections. Estimated costs must also include elements of work associated with comparison and syntheses of the investigation results, as well as report preparation.

Requirements and Standards for Survey and Identification

A properly directed survey will identify all the archeological resources in the project area and determine which may require additional investigation to evaluate NRHP eligibility. When possible, this kind of identification should be completed during the survey phase of a project. Evaluative testing beyond the survey phase should establish the significance (i.e., NRHP eligibility), or lack of significance, for all sites not previously evaluated during the course of the survey or during subsequent investigations.

It is essential that the Section C Scope of Work be written to insure that the survey phase of a project provides all information required by managers and planners in making decisions that could affect significant resources. Guidance on the standard elements of effective preservation planning is contained in the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (Department of the Interior 1983:44716-44720). Managers' and planners' decisions should be based upon information that contributes to understanding the historic contexts of significant archeological resources; to achieving the systematically defined priorities for identification, evaluation, and treatment; and to integration of results into the agency's broader planning processes. Structuring appropriate levels of survey to effectively collect this information is the goal of properly designed identification activities (Department of the Interior 1983:44720-44723).

Figure 3. The spectacular cliff dwellings at Wetherill Mesa in Mesa Verde National Park, CO, were internationally known discoveries by 1893. By the time the Antiquities Act was passed in 1906 a force of Federal forest supervisors, rangers, and special agents, Indian school superintendents and teachers, Indian agents, farmers, police, and Indian themselves had been mobilized to protect important Southwest archeological sites. By 1910 several of these sites were added to the inventory of national cultural preserves, including Mesa Verde, El Morro, Chaco Canyon, and Tumacocori.

Site Evaluation Standards and Procedures

Site evaluation can and should be initiated during the survey phase of a project. In the course of on-the-ground survey work, some sites can be evaluated as significant and some can be evaluated as not significant as these discovered properties are recorded. The record of properties discovered becomes an inventory for evaluation as site boundaries are defined and the range of property types and variety of archeological features are established (Department of the Interior 1983:44723-44726). Recording is accomplished through mapping, shovel testing, augering, excavation of one or more 50-centimeter to 1-meter square, or larger, test units, or a combination of these or similar sampling procedures.

Survey procedures may produce sufficient information to evaluate the recorded resources, particularly those that readily appear to lack NRHP qualities. Conversely, where shovel tests or other sampling procedures have established clear-cut evidence or supporting data for meeting NRHP criteria, sites can be evaluated as eligible properties.

The remainder, those sites or properties not evaluated during the survey recording phase, will require evaluative testing. For larger projects, and in cases where high site densities are discovered, often the most economical way to accomplish this is through a separate procurement following site discovery and recording.

In either case, with site survey and recording or evaluative testing, clearly stated recommendations about NRHP eligibility are required. These recommendations must be supported by evidence that demonstrates why a site can or cannot contribute to the theoretical and substantive knowledge of archeology (NRHP Criterion d) (Butler 1987). The SOW for any survey or site testing project must clearly state these evaluation requirements and limitations to the offeror so that there will be no misunderstanding as to what work is needed and how it is to be presented.

Recommendations for further investigations beyond a site evaluation program, such as impact assessment, must be fully justified, otherwise they are inappropriate. In these cases, a phased program of deliverables, tied to specific contractual milestones and a phased payment system, is a good approach that allows for progress monitoring and quality control.

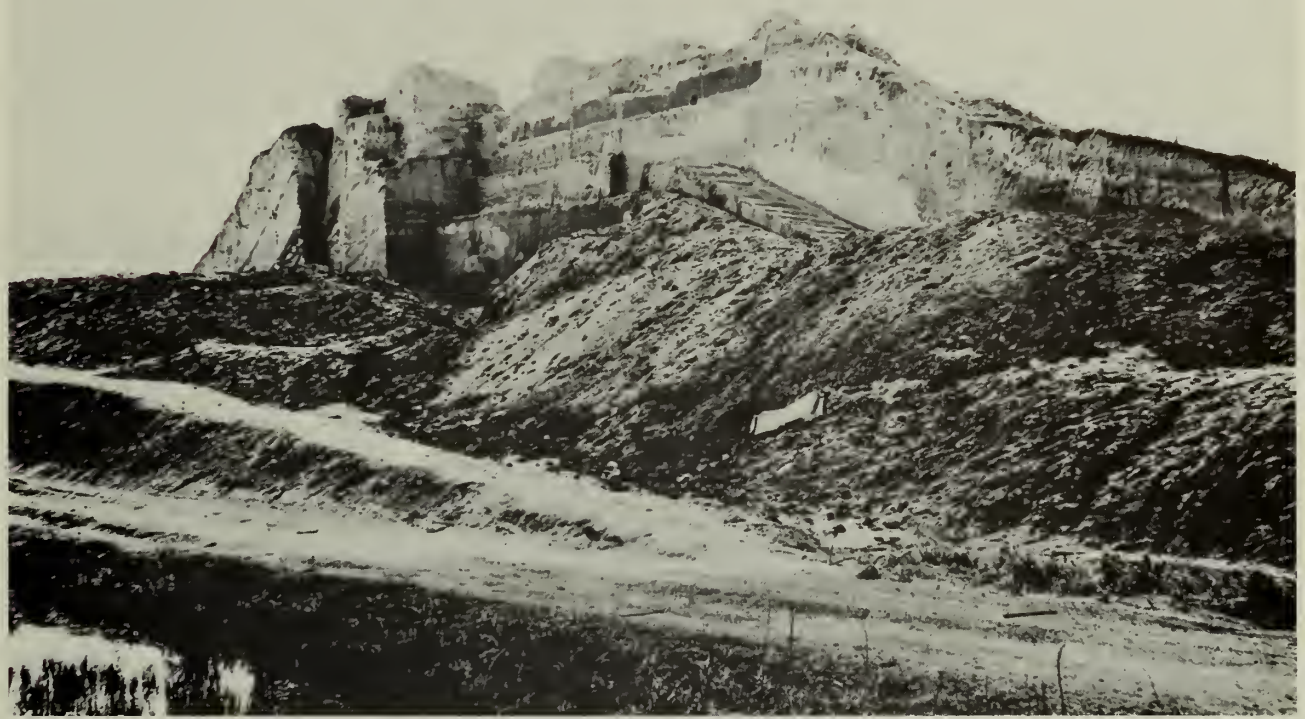


Figure 4. By the early 1900s, Federal managers, particularly in the General Land Office, were pressing for authority to apply scientific management of archeological preserves as with other kinds of resources within their jurisdictions. The enormous mound excavations during the 1930s, such as those at Ocmulgee National Monument, had economic aspects as well as scientific goals. Between 1962 and 1984, at least 12 more projects were conducted to analyze these earlier data. Some of this work was completed under contract to regional universities.

NRHP Recommendations

Although a well written SOW will require a relevant, professionally acceptable research design, one cannot assume that all offerors will relate this requirement to site evaluation procedures, NRHP eligibility recommendations, and the "ability" of a site to contribute or not contribute to knowledge. Therefore, the SOW also must state clearly and simply how recommendations about NRHP eligibility are to be developed and justified in terms of research potential such that those recommendations may be judged against an offeror's research design. It is suggested that SOWs cite Butler's (1987) definition of significance and its application to NRHP eligibility criteria and require any recommendations to concur with that definition. It also is recommended that reference to and use be made of the evaluation criteria and cultural contexts that have been developed and stated in relevant State Historic Preservation Plans or other state-sanctioned documents that contain up-to-date regional research designs.

The determination of which sites may meet the criteria for eligibility to the NRHP requires the analysis of all material and data accumulated during a project, including comparative analysis and the synthesizing of findings based upon previous investigations in the region. Without these professionally acceptable procedures, it may not be possible to determine the research values of a site, and the report, the contract product, may not meet professional standards. Consequently, the final report on the project will be of little use or value to the Federal manager, the SHPO, and the professional community. Limited research dollars will have been wasted, and the timely reporting of results will have been hampered.

Curation Standards

Section C should also contain instructions on the curation of artifacts and materials and should reference the curation standards outlined in 36 CFR Part 79 and other agency specific curation guidelines.

Section M and the Proposal Evaluation Process

Section M is a critical element of the RFP because it contains the detailed descriptions of the criteria that have been developed and will be used to evaluate the submitted proposals. As a major participant in the development and application of the proposal evaluation criteria, the agency archeologist has yet another opportunity or mechanism to insure that a project will satisfy legal and regulatory requirements and meet professional standards.

Proposal evaluation is an important process that requires qualified evaluators who must exercise strict impartiality in the review and scoring of proposals. Complete objectivity is an absolute necessity in proposal evaluation, and each proposal must be judged on its own merits, with no consideration of outside influences, such as evaluator preferences or prejudices. To do otherwise defeats the goals of competitive proposal procurement and may result in protests against an award.

Careful development of proposal evaluation criteria is important because the preparer must very thoughtfully select and weight those aspects of a project that are critical to its successful completion. The criteria selected must be based strictly on the requirements and conditions presented in the RFP, as revealed primarily in the Section C Scope of Work. Offerors should not be penalized for deficiencies in the solicitation.

The evaluation factors selected and listed in Section M and the weights applied will depend principally on the type of project to be conducted, the results desired, and the nature of the pool of potential offerors. For some projects, field and laboratory aspects of a project are most important and are assigned a greater weight and require a stronger emphasis on personnel qualifications. Depending on the nature of the project, greater attention or weight can be placed on the evaluation criteria for research design, site evaluations, or comparative analyses of material and data. In these cases, offerors should be advised of the relative weight assigned to each evaluation criterion because this enables each offeror to concentrate energy toward the main objective(s) sought by the agency.

Cost is usually not as important as technical factors when procuring archeological services, but it is a factor that must be evaluated and may be the determining factor in selecting the successful offeror. Cost will normally not be the determining factor unless proposals are essentially equal (Butler 1979:32). This does not mean that the proposals in question must have the same technical score, but rather that each proposal would fulfill the agency's minimum needs. Each case must be judged on its own merits. A higher cost must be justified by a product offering sufficient additional value to the agency to warrant its additional cost.

Evaluation of a project proposal is accomplished by a Technical Evaluation Panel or TEP (formerly termed Technical Proposal Evaluation Committee or TPEC). The TEP members and the Panel Chair are formally appointed by the Contracting Officer based on their particular knowledge and skills (IAS-Denver 1979:24-25; Butler 1979:30-32). Prior to proposal evaluation, the TEP members meet to review the Scope of Work and proposal evaluation criteria. At this time, the Panel Chair must inform the TEP of any other requirements and impress on the members the absolute necessity of comparing in detail the contents of proposals with the Section C Scope of Work and providing comments or questions for all points of concern.

Each TEP member must submit to the Contracting Officer, through the Panel Chair, a signed non-disclosure agreement affirming that he or she has no conflicts of interest regarding any offeror, and that he or she will not divulge data or information within any offeror's proposal to any other offeror or to any unauthorized person.

The Panel Chair must prepare a memorandum of negotiations prior to contract award, and to do so he or she must have sufficient information concerning proposal evaluations. Thus, it is essential that each TEP member complete each proposal evaluation in detail, providing a written narrative that addresses each evaluation factor or element. Positive as well as negative information must be supplied. It is not sufficient for reviewers to leave questions blank or filled with "yes" or "no" answers. To do so is a failure of the evaluator to provide the required information. This could necessitate the reevaluation of proposals, which could delay award of the contract and cause serious repercussions.

Other Important Sections of the RFP

Section F: Deliverables

Section F of the RFP, "Deliveries or Performance," provides an opportunity to reinforce, but not repeat, the requirements presented in Section C. Among other things, Section F enumerates the items to be delivered to the Contracting Officer, including progress reports, archeological site forms, maps, and the draft and final reports of investigations.

Unless already specified in Section C, solicitations should include in the list of deliverables a minimum content outline for the draft final report. Offerors should be instructed to address all topics listed in the outline in the draft report, along with any additional topics the offeror wishes to propose. The

Figure 5. Public interpretation of ongoing archeological excavations was part of the research program at Jamestown (part of Colonial National Historic Park) during the 1930s. Here, it was shown how close collaboration between historical and archeological studies provided new understandings about the past.

required topics should include a discussion and an accompanying assessment of the proposed research design and field methods. This reiteration of the research requirement should emphasize the importance of this aspect of a project.

If not covered in Section C, Section F should contain instructions on minimum content of the technical proposal, including an annotated outline of required or suggested headings, such as Cover Page, Table of Contents, General Plan of Work, Management/Personnel, Performance and Delivery Schedules, or other headings deemed appropriate for the project.

Section H: Special Contract Requirements

Section H contains publication limitations and standards, what information is available within the Federal government for use by the contractor, and any special requirements of a contract.

Section L: Instructions, Conditions, and Notices to Offerors

This section of the RFP is important because it contains specific instructions to offerors for the preparation of proposals. It should contain general information and guidelines on the agency's method for evaluating or rating of proposals, including technical requirements and pricing. In order to emphasize their importance, specific reference should be made in Section L to the technical evaluation criteria listed in Section M, as discussed above.

Contract Award and Monitoring

After a contract is awarded, a meeting with the contractor is highly recommended in order to facilitate a mutual understanding of contract requirements and conditions. At this meeting, the services to be performed should be reviewed and any remaining questions and clarifications resolved. Among other things, the Contracting Officer may discuss contract conditions, security, and other administrative matters. The

Contracting Officer may want to discuss special safety measures, especially if a military base is involved. For the agency archeologist, this meeting presents an excellent opportunity to impress upon the contractor the importance of research and its relationship to the evaluation of sites according to NRHP criteria.

After work has been started, contractor performance must be monitored to insure conformity with the terms and conditions of the contract and to insure that sufficient progress is being made toward completion of the project (Butler 1979:31; IAS-Denver 1979:26). Preparers of RFPs should insure that provisions for monitoring are included in Section C or Section H.

Field and laboratory monitoring provides yet another opportunity to insure the professional acceptability of a report of investigations. If an RFP is prepared properly and the successful proposal addresses all requirements, the foundation has been laid for a successful contract. However, to guarantee successful completion periodic monitoring must be conducted throughout the life of the contract. Visits to the field are necessary to determine if work is quantitatively and qualitatively adequate. Similarly, laboratory monitoring will assure that all required analyses and procedures are being performed and that all data and information essential to execution of the research design and preparation of a report are assembled. Proper monitoring should reveal any deficiencies or other problems that can be corrected before they become threats to the achievement of project goals.

Monitoring during the report preparation phase may or may not be as critical. If there were problems during preceding project stages, the agency archeologist may elect to review various sections of the draft report as they are prepared, particularly those pertaining to the research and resource management aspects of the project. Any omissions, deficiencies or other shortcomings can be corrected before they impact the project schedule.

Figure 6. By the early 1970s, archeological preservation projects were extraordinarily complex, not only in terms of research objectives but also with regard to social impacts. At Fort Stanwix National Monument, historical archeology was conducted in an urban setting. The Urban Renewal Agency of Rome, NY, completed archeological survey work, the City of Rome and the National Park Service developed a Master Plan, and the reconstruction project goal required integration of architectural, documentary, and archeological information.

Report Review and Acceptance

Review of the draft report of investigations is a final opportunity to remedy any remaining deficiencies, which should be minor if individual sections have been previously reviewed. The draft report should be submitted for peer review and provided to the SHPO for review and comment. Communication with the SHPO is necessary to insure State concurrence with project findings, conclusions, and recommendations concerning legal and regulatory requirements.

Archeologists may argue the finer points of interpretation, but unless the legal aspects of a report fulfill the needs of those who are required to make management decisions, dire consequences can result, not the least of which may be the delay of critically needed facilities and the loss of valuable time and money. Agency archeologists must be careful, however, not to allow professional, i.e., interpretive, disagreements to adversely affect contract performance and the ultimate success of the project.

Conclusion

This technical brief has been a discussion, with certain observations and criticisms, on the Federal competitive procurement process as a model that can be used in archeological contracting. It has emphasized project-oriented archeological work and the development and utilization of relevant criteria for the National Register of Historic Places, especially with regard to the determination of what is important and therefore "significant" in prehistory and history. Improved use of the RFP competitive procurement process is a valuable way to provide better and more innovative archeological investigations, evaluations, and reports. Competitive proposals provide an opportunity to evaluate differing ideas, plans, and approaches for conducting an archeological investigation rather than merely responding to a rigid work description or Scope of Work with a bottom line cost.

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Editor's Note

Some program-oriented activities and scenarios may involve inventory contracts where formal NRHP evaluations are not immediately required. Alternative strategies for contracting to meet these situations are topics for future discussion.

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REVEGETATION: The Soft Approach to Archeological Site Stabilization

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U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Introduction

This Technical Brief is the third in a series that addresses the issues of archeological site stabilization and protection. Each Technical Brief in the series will describe a potentially useful technique for maintaining the integrity of an archeological deposit. This series, and the complementary Technical Notes *assembled by the U.S. Army Corps of Engineers Waterways Experiment Station in its* Archeological Sites Protection and Preservation Notebook, *are designed to provide baseline data for the initiation of site stabilization projects. The use of vegetation always should be considered a viable means of site protection when developing a set of stabilization alternatives.*

Revegetation History

Archeological sites throughout much of the United States have been covered with some form of vegetation since they were abandoned by their original inhabitants. Carefully planned revegetation of such a site will not constitute a previously unknown intrusion into the cultural deposit. Such major earthworks as those at Cahokia, Emerald, the Pharr Mounds (Figure 1) on the Natchez Trace, and the Great Serpent Mound have been maintained through the use of floral cover (Thorne, Fay and Hester 1987). More recently, the Albany Mound group in Illinois has been stabilized through a program of vegetation removal and replacement (Brown 1983), and the Petersburg National Battlefield is being protected with a carefully devised landscape management plan (Andropogon Associates 1988, 1989). Part of the Newark Earthworks has been protected through the upkeep of golf course grasses. At the Winterville Mound group in Mississippi (Figure 2), dense stands of tall grass have been used for several years to stabilize the sides of the mounds as well as to direct the movement of visitors around the park.

Revegetation is currently being undertaken as a part of the total site stabilization package at Lake Britton in northern California. Willow (*Salix negra*) cuttings were put into place on a sloping bank and beneath a midden deposit (Figure 3). Figure 4 indicates the extent of cutting growth after 12 months.

Willow was selected for use in this particular setting because the rate of shoreline loss is very slow and immediate protection was not deemed necessary. In this particular instance, as the willows mature and begin to drape over the edge of the lake, mayflies will find a suitable habitat. A secondary benefit of this site stabilization effort will be the improvement of the local fishery.

Revegetation Benefits

The reintroduction of plants on or around an archeological site can be one of the least visually intrusive stabilization techniques available. Careful species selection produces a vegetative cover that blends well with the surrounding environment, and places a site in a more "natural" setting. Properly selected species can also enhance a habitat for the faunal community that frequents the site. As a result, habitat enhancement carries the additional advantage of letting the archeological community develop a protectionist alliance with groups whose primary interests lie outside the area of cultural resource management.

The use of vegetation as a means of achieving site stability can be viewed as a soft approach in comparison to the more traditional engineering approaches such as riprap or revetments. Floral systems have the advantage of being elastic, and species easily can be found that are adapted to a broad range of micro-topographic settings. Vegetation can also effectively dissipate wind and water energy that can destroy a cultural deposit.

Depending on the setting of a specific site, both types of force can come into play. The majority of soil movement that is stimulated by wind action takes place in a zone that extends from the surface of the ground to heights that are below 3 feet. Wind velocities necessary to move soil particles are less than 13 miles per hour at a height of 1 foot above the ground. Once wind-generated soil movement starts, velocities less than 13 miles per hour are likely to be sufficient to continue soil loss. Since 62 percent to 97 percent of soil loss activity occurs in the 3-foot vertical zone closest to the ground, vegetation that exceeds 3 feet in height will serve to filter soil from the driving wind and at the same time lessen the force of the wind (Gray and Leiser 1989:12-13)

Figure 1. Pharr Mounds, Natchez Trace Parkway, MS, stabilized with native grasses.

The kinds of water-generated erosion that are most frequently mentioned as impacting archeological deposits are sheet erosion and stream channel erosion. In many areas, lacustrine erosion of sites has a greater impact on archeological materials than channel erosion, but a one-to-one comparison is not possible since two very different kinds of forces are operating to remove the cultural deposit.

Cultural resources managers, including archeologists, seldom recognize the impact that rainfall has on unvegetated and unprotected surfaces. Raindrop impact can cause soil particles to move as much as 2 feet vertically and 5 feet laterally on level surfaces, and if a sufficiently steep gradient is present, slope movement of soil can occur (Gray and Leiser 1989:12-13). From the perspective of energy, raindrop erosion exhibits greater kinetic forces than water that causes sheet erosion. Soil movement results from both rain and sheeting water with raindrops serving to dislodge individual soil particles that are then moved farther by the sheet erosion process.

The volume of soil removed through sheet erosion is increased also as a result of frost heave, since this heaving action will uniformly loosen the soil. Some counter-erosion compaction occurs as rain falls on unprotected soil, but the rate of compaction is not sufficient to prevent sheet erosion from occurring.

The destructive force of various forms of erosion can be lessened if not completely stopped in many situations through the use of carefully selected vegetation. As the lateral roots of vegetation spread and intermingle, the soil becomes bound together and acts like a composite material. Stresses in the soil are transferred to the root fibers, which have relatively high tensile strength, and in this manner the soil is reinforced and strengthened (Gray and Leiser 1989:39).

In aquatic environments where moving water pressures are fairy constant on the vegetation, a well established stand of grass will react accordingly and can reduce stream velocity and wave forces by as much as 90 percent (Keown, Oswalt, Perry and Dardean 1977:59). Mitigation of lateral shear force is accomplished by a variety of plants through the development of special stabilizing tissue and root stiffening and strengthening (Schiechtl 1980:208). Mechanical stabilization techniques do not exhibit this self-regulating capability, nor are they pliable.

Budgetary constraints make the use of vegetation an especially attractive choice because of the lower cost of initial installation and post-placement maintenance. In addition, plantings can be used in combination with a number of mechanical stabilization techniques and further strengthen the mechanical installations. In most cases, no special labor expertise is required to put plantings in place, and labor costs can be held at a minimum. Plant installation is, however, a labor intensive operation. When necessary, vegetation can be reestablished without disrupting a cultural deposit by using seed-bearing spray mulches or by seeding beneath biodegradable mats. The use of mulches and matting can add appreciably to the cost of a revegetation effort. As a cost cutting measure, used carpeting can sometimes be substituted for matting at no cost. Frequently, planting materials such as willows can be obtained locally, which can further reduce installation costs.

*Figure 2. Winterville Mounds in Mississippi with a dense growth of Johnson grass (*Sorghum halepense*) used for stabilization and traffic routing.*

Plant materials have the additional advantage of adapting to a wide variety of environmental conditions and topographical features. Maiden cane (*Panicum hemitomon* Schult.), which has been tested for its capabilities as a mechanism for erosion control, will grow in shallow water, across a shoreline, and up a bank for a short distance (Young 1973). Similarly, species can be obtained that will grow on dry soils (Haffenrichter, et al. 1968; U.S. Department of Agriculture 1976), on sand dunes (Knutson 1977), and in rocky or badly disturbed terrains (Vogel 1981). Some degree of control of ultimate plant height can be exercised during the plant selection process, and important anti-looting protection can also be obtained through careful plant selection.

Once established, a protective live vegetative cover requires little or no maintenance. Grasses can be managed through hay-cutting. In addition to maintaining an attractive appearance, haying has the potential of being a no-cost operation that could generate a portion of the site's maintenance funds.

Revegetation Limitations and Liabilities

Revegetation, like other stabilization techniques, is not without its own set of liabilities, and these must be carefully considered and weighed against its advantages. An assumption that must be accepted as a part of most stabilization projects is that, since a significant resource is being lost, some negative effects resulting from the stabilization effort are acceptable and preferable to the continuing loss of the site. In a revegetation effort a small amount of additional site loss can be predicted before the plantings reach their maximum protection potential.

Root Disturbance

The most frequently voiced objections to site revegetation center around the intrusion of roots into the cultural deposit. Beyond doubt, root growth can disrupt and contaminate what may appear to be an otherwise undisturbed deposit. With the exception of historic and late prehistoric sites, forests and grasslands have covered many of the sites in North America, and such site contamination and disruption has already taken place.

The potentially negative impacts from a revegetation program can be recognized, and ways to deal with those impacts can be identified during the project design process. Perhaps the best approach to problem-solving in planning for revegetation stabilization is to recognize two broadly defined kinds of disruptions. One may be of a physical nature while the other may be bio-chemical.

Within the context of an archeological deposit, physical disruption includes the lateral and vertical displacement of

artifacts and biofacts and the interruption of the general continuity of the archeological deposit. Bio-chemical disruption stems from changes in soil pH, changes in the hydrological characteristics of the cultural deposit, and changes in the microfaunal community, which could in turn alter the chemical constituency of the deposit.

The majority of the physical disruptions that a site experiences from revegetation derives from the root systems of the cover species. The depth and lateral spread of various plants is species-specific, as some species are more deeply rooted than others, while some species have a greater lateral distribution of the supporting roots (Meyer and Anderson 1939:266-267). However, knowledge of the variability of root system development for specific species is not sufficient to be able to predict root growth and the concomitant potential for site disturbance. Other factors, many of which are specific to site location, must be taken into account. Among these are depth of the water table, the presence of a subsurface hardpan, buried sand strata, and gravel deposits.

Primary root systems, such as taproots and the laterals that radiate from them, are likely to cause the most site disruption since these are the largest roots in complex. The secondary root system of most species is threadlike or fibrous and generally too small to pose any displacement problems. These smaller roots do have the potential of invading small spaces in artifacts, bone, and charcoal, and in sufficient numbers or size can wedge these materials apart. This kind of potential destruction is likely to be minimized since the nature of these roots is such that impenetrable, non-nutrient bearing substances will cause the root to grow in another direction (Laycock 1967:C21-C22). By the same token, if archeological material is not cracked or broken, the potential wedging action of secondary roots is not likely to pose a problem. Primary roots are generally of sufficient size that artifacts will be displaced rather than broken or destroyed.

Perhaps the most destructive physical impact that floral cover can have on an archeological deposit comes from overturned trees. Since the majority of the primary root system of most trees is within the first few feet below the surface of the ground (Meyer and Anderson 1939:267), blowdowns are likely to pull large chunks of soil and artifacts from a cultural deposit. Tree throws can produce large holes that are subject to being refilled by accumulated leaves, and the materials that were pulled up by the falling tree and must be accounted for in subsequent scientific excavations.

This points out the care that should be exercised in the selection of species to be used in revegetation projects. Species of larger vegetation such as trees that have heavy crowns with broad lateral root systems should generally be avoided. Similarly, species that have massive and deep root systems should be avoided to insure that deep disturbance is minimized.

Bio-Chemical Disruptions

Bio-chemical destruction of archeological materials that may result from revegetation seems to be much less of a problem than site destruction from physical forces. The chemical composition of the leaf fall of different plant communities varies according to the predominant species of the community and will vary somewhat within a community depending on the volume of litter produced and the age of the dominant species. Soil pH is controlled by plant litter to a relatively shallow depth, being principally confined to the humic zone, while the pH of soils beneath the humic layer reflects the petrographic nature of the substrata (Braun-Blanquet 1932:245).

When a plant community changes as a result of increasing numbers of an invasion species, soil pH may change to reflect the character of the invaders. In so far as the archeological component is concerned, these are minor changes since they are largely confined to the humic zone and will have little impact on the soils that lie below. Principal changes occur in soil pH and in the organic matter content. Plant health, and ultimately the success of a revegetation effort, is dependent on the presence of nitrogen, phosphorus, and potassium and appropriate H-ion concentrations.

The extent to which amounts of nitrogen, phosphorus, and potassium adequate for successful plant growth can alter artifacts seems to be largely unknown. One must suspect that the presence of these chemicals has little effect given the excellent state of preservation of artifacts in heavily vegetated sites. It is worth noting, however, that when levels of decaying organic matter become sufficiently high, carbonic and nitric acids are produced in quantities that are sufficient to release phosphorus that is present in parent soils (Longsdon 1975:58). Carbonic and nitric acids are thus present in most decomposing leaf and stem litter and may account for alterations in soil/site matrix pH.

Higher concentrations of the H-ion, which are dependent on the decomposition of plant litter, occur in the very top layer of the O horizon, from 1 cm to 2 cm. As the depth below this zone increases, H-ion concentration decreases and the pH of the soil remains stable (Braun-Blanquet 1932:173). At varying depths below the A-1 horizon, depending on the

Figure 3. Willow cuttings immediately after sprigging, Lake Britton, Shasta County, CA.

depth of soil development, pH is controlled by moisture and the characteristics of the underlying bedrock, and not on the decomposition of plant litter.

While Mathewson (1989:230) addresses the issue of site burial specifically, his archeological component/preservation matrix provides some insight on the effects of acidic versus basic environments with regard to artifact loss. If soil conditions are altered from basic to acidic, an acceleration of the rate of loss of certain kinds of archeological remains will occur. Since changes in soil pH occur in the humic zone (O horizon) and in the upper portions of the A horizon when cover species are added or changed, leaching is likely to dissipate any significant acid accumulation. Artifactual materials in and beneath the A horizon are not likely to be altered at an increasing rate as a result of decomposing organic debris on the surface.

Climate and topographic characteristics affect the production of organic matter in soils while various soil types also affect the accumulation of organic matter. Generally, forest soils derive their organic matter content from leaf fall since tree roots usually live for many years and decompose slowly. The upper 6 inches of a soil will contain the highest concentrations of organic matter, largely as a result of movement by insects, worms, and small animals that live in the A horizon. Below the first foot of depth, soil organic matter content is about 1 percent of volume, and organic matter is virtually absent at a depth of 4 feet.

The relationship between organic matter content and soil depth for grassed areas is similar to that of forested areas. At the O horizon level organic matter is about 5 percent of volume, at a depth of 1 foot it is about 1 percent, and at a depth of 4 feet it is only about 0.1 percent (Thompson and Troeh 1957:126-130).

The introduction of vegetation or the revegetation of an archeological site will have little effect on its organic matter content, assuming that the site has had an existing floral cover. On completely denuded surfaces, it will take several years for organic matter to accumulate, and this will be related to the presence of quantities of nitrogen sufficient to allow plant growth (Thompson and Troeh 1957:131). The addition of chemical nitrogen may prove to be necessary to ensure revegetation.

Figure 4. Willow cuttings 12 months after sprigging, Lake Britton, Shasta County, CA.

Given the low levels of soil organic matter below the A horizon, the loss of artifactual materials should not be accelerated.

Project Planning

Even though revegetation projects can be put into place in relatively short periods of time, project development and implementation sometimes require a relatively long preparation time. Plant selection, acquisition, and placement must occur during periods of plant dormancy to insure maximum survival once the growing season begins. Freeze/thaw cycles, periods of dry weather, and disease can lead to plant loss. Notice should be taken of potential plant toxicity for the crews who will make an installation. Commonly seen plants such as English ivy cause allergic reactions in some people. While not directly a concern for stabilization projects, care must be exercised to protect against the introduction of species that might ultimately become weeds. The best approach to a revegetation program is to try to select species that are native to the vicinity of the stabilization project. If a non-native or commercially supplied species is to be used, careful consideration should be given to the background of the planting material selected.

Sources of Plant Data and Planting Guidelines

While a wide variety of data that deal specifically with revegetation is available, information is scattered and sometimes difficult to acquire. Schiechtl's (1980) *Bioengineering for Land Reclamation and Conservation* is an excellent source of information on planting techniques and the range of microenvironments that can be stabilized by revegetation. Much of the background data Schiechtl uses is from Europe, and many of the species that he recommends are not indigenous to North America. Similar species do occur in the United States, however, and substitutions can be easily identified.

The most readily available source of revegetation data has been developed by the Soil Conservation Service (SCS) of the U.S. Department of Agriculture. Some information is available from the regional SCS Plant Materials Centers. These organizations are responsible for the testing and development of species that are suited for stabilization in their respective regions. Prior to 1969, SCS prepared several handbooks on stabilization issues that provide regionally specific data.

Other sources of revegetation and stabilization data are the U.S. Forest Service and the U.S. Army Corps of Engineers (COE) laboratories, particularly the COE Waterways Experiment Station. The COE reference works generally deal with streambank and lakeshore erosion, in contrast to the work of the SCS which deals with both wet and dry environ-

ments. Maritime erosion problems are dealt with by the COE and the *Shore Protection Manual* (1984), which is a highly technical source of stabilization data. SCS publications are also available for coastal areas.

Local and regional SCS offices can provide support in making planting selections as well as determining fertilizer and lime requirements for revegetation projects. Soil pH requirements for maximum growth will vary by species, and soil testing should be completed after the plants have been selected. In this manner, a fertilization and liming plan can be devised that will be suited to the selected cover plantings. At the same time, a maintenance schedule for fertilization can be developed. From that schedule future maintenance costs can be projected.

Installation Costs

Stabilization projects that employ revegetation as the primary technique can provide one of the most cost-effective means of site protection available. This is true not only for initial installation but for long-term maintenance as well.

Cost projections for a program of revegetation should include plant purchase costs if the species to be installed cannot be collected. If collection is possible, projected labor costs must include not only the time needed to install the materials but collection time as well. Neither of these tasks requires skilled labor, so costs can be minimized. If purchasing of materials is required and the materials must come from some distance, shipping charges may add significant cost.

Request for Assistance:

Information exchange about site stabilization is available from and should be reported to:

Dr. Robert M. Thorne
National Clearinghouse for Archeological Site Stabilization
Center for Archeological Research
University of Mississippi
University, MS 38677

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The manual's primary focus is to develop management strategies and interpretive guidelines that resolve current conflicts between the requirements for preservation and the impacts of interpretation and visitor use at earthwork sites. The manual is intended to serve as a guide for all earthworks in the National Park Service (NPS) system and for application to similar environments within the NPS system with limited study. A major observation noted during the review of the sites evaluated for the preparation of the manual was that earthwork sites stabilized by healthy, native plant communities are in the best condition, while some current management practices have contributed directly to the degradation of the resource. The manual is divided into two major sections. The first section is a review and evaluation of current management practices and an assessment of present vegetative cover types. Recommendations are made for an overall management program aimed at integrating preservation and interpretation objectives. The second section begins with procedures for evaluating and monitoring a site with respect to the proposed guidelines. Since many of the management techniques focus on native plant communities, the management of which are unfamiliar to many park employees, workshops at various levels of NPS employees were held. Actual hands-on instruction sessions were used as a means of both teaching park employees how to use the soil bioengineering techniques and to begin restabilization and revegetation on damaged ground surfaces that needed immediate attention. Critical to the soil bioengineering techniques is the need to prioritize problem areas to include both short term and long term management practices.

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The Albany Mound site consists of some 40 to 50 mounds and 3 village areas and is owned by the Illinois Department of Conservation. Preservation of the site, with a very limited budget, was a multidisciplinary effort. Invasion species were removed from the site, and prairie grasses, brush, and trees that would have been a part of the original prairie community were left to grow to maturity. Management of the prairie environment will be through controlled burns, and the expense of maintenance will be minimized.

Hafenrichter, A. L., John L. Schwendiman, Harold L. Harris
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This handbook was revised in 1979 and is no longer listed as a handbook. It identifies grasses and legumes that are suitable for erosion control, categorizing them according to the projected life of each. Each species is discussed, and line drawings as well as Agricultural Zone maps are included. Planting directions are a part of each species description, and recommended planting rates are listed in an appendix.

Knutson, Paul L.
1977 *Planting Guidelines for Dune Creation and Stabilization.* Coastal Engineering Technical Aid 77-4, Coastal Engineering Research Center, Fort Belvoir, VA.

Beach grasses have been used to stabilize dune systems. Techniques are available to propagate beach grasses. Guidelines for selecting plants and planting methods, obtaining plants, storing, planting and maintaining plants, and estimating labor requirements for dune vegetation projects are included.

U.S. Department of Agriculture
1976 *Plant Materials Study: A Search for Drought-Tolerant Plant Materials for Erosion Control, Revegetation, and Landscaping Along California Highways.* Soil Conservation Service Research Project, USDA/SCS LPMC-1, Davis, CA.

Plant materials were assembled, propagated, and established along California State highways. Grasses, legumes, and the California poppy were evaluated for erosion control, fire control, and aesthetic purposes. Shrubby species were evaluated for revegetation and general landscaping. Emphasis was placed upon drought-tolerant, low-growing plants that would require a minimum of maintenance. A herbaceous seeding guide and a list of native shrubs and trees were prepared for California, classified by major land resource areas. Special and supplementary studies relevant to plant propagation and establishment were conducted. Whenever possible, the plants were evaluated on representative highway sites using common methods applied by contractors. Most data were collected by visual observation; no statistical analyses were made beyond simple arithmetic averages. Some continued monitoring of plantings is recommended to assess anticipated future changes.

Vogel, Willis G.
1981 *A Guide for Revegetating Coal Mine Soils.* General Technical Report NE-68. U.S. Forest Service, Northeastern Forest Experiment Station, Berea, KY.

This report provides information, recommendations, and guidelines for revegetating land in the Eastern United States that has been disturbed by coal mining. Included are brief descriptions of major coal mining regions in the East, a discussion of mine soil properties, and procedures for sampling, testing, and amending mine soils. Plant species that have been used for revegetating surface-mined lands are identified and described. Selection criteria for plant species and methods and requirements for seeding and planting are explained. Some of the data on tree species used in reforestation were obtained from recent surveys of 30-year-old experimental plantings in several Eastern States. Included are maps showing the Eastern coal regions or portions of them where a plant species has been used successfully or its use is recommended.

Young, W. C.
1973 Plants for Shoreline Erosion Control in Southern Areas of the United States, modified by W. C. Ackerman, G. F. White, E. B. Worthington in *Man-Made Lakes: Their Problems and Environmental Effects.* Geophysical Monograph Series No. 17. American Geophysical Union.

This paper discusses various species of plants that have been tested for their adequacy in stabilizing eroding shorelines. Maiden cane is specifically identified as a good choice for protection objectives that extent across waterlines.

Technical Briefs are designed and produced by the Departmental Consulting Archeologist and the Archeological Assistance Division of the National Park Service. The series' editors are Francis P. McManamon and Richard C. Waldbauer. The graphic designer is Juliette G. Tahar. Submit comments, topics for future briefs, and requests for copies to: U.S. Department of the Interior, National Park Service, Archeological Assistance Division, P.O. Box 37127, Washington, DC 20013-7127.

ARCHEOLOGICAL ASSISTANCE PROGRAM
Technical Brief No. 9, October 1990

TRAINING and USING VOLUNTEERS in ARCHEOLOGY: A Case Study from Arkansas

By Hester A. Davis
Arkansas Acheological Survey

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

In this age of rapid transformation of the earth's landscape, our only hope for recovery of any major portion of this history [that is written in the soil] is by nearly total involvement of the public (McGimsey 1972:6).

Introduction

Involvement of the public in archeology can and has taken many forms. The quote from McGimsey above reflects the philosophy of public archeology that he espouses, and which has led many, both professional and avocational archeologists, into cooperative endeavors of mutual benefit. There are pros and cons to such programs for both sides. There are professional archeologists who condemn any archeology done by anyone without an advanced academic degree and several years of training. There are avocational archeologists (and I use this term to mean people who do scientific archeology as a hobby not as a profession) who have met with the above mentioned kind of professional and as a consequence think all professional archeologists are mean spirited and want all the sites and artifacts for themselves. There are also people of all persuasions, all degrees of training and experience, who wish to cooperate to record and preserve information from the past in a way that will be personally satisfying and rewarding, as well as scientifically appropriate.

Until the millennium comes, there will be pothunters and dealers in antiquities -- those who are more interested in the artifacts as a commodity than in the information associated with them. There also will be, as there always have been, those interested in the past and in the techniques of archeology who are not professionally trained but who wish to contribute to the accumulation and the preservation of information. Given the premise that prompted McGimsey's statements, that the land is being transformed and sites destroyed at an accelerating rate, it behooves all who are interested in archeological preservation to find some satisfying and productive ways to achieve our goals of personal satisfaction and scientific advancement. Establishment of Archaeology Weeks (Hoffman and Lerner 1988) is one way; partnerships with landowners is another (Henderson 1989); training programs such as the one described in this brief are yet another.

There have been and are archeological training programs in many States. The Field School of the Texas Archeological Society is the largest and perhaps the oldest formal program for avocationals. It began two years before the Arkansas program, it lasts nine days, and it attracts 400 participants at a minimum.

The Arkansas Training Program for Avocational Archeologists was created in 1964 with two major goals: (1) providing interested citizens with the opportunity to gain information on how to do archeology "right," and (2) multiplying manyfold the eyes and ears of the few professional archeologists in efforts to preserve the State's past. The program was initially a joint venture between the University of Arkansas Museum and the Arkansas Archeological Society, and then, in 1967, with the creation of the Arkansas Archeological Survey, that agency assumed the coordinating and supervisory efforts from the University Museum. In 1972 a formal Certification Program was created. It does not replace the regular Field and Laboratory Training Program but rather supplements it.

The Field and Laboratory Training Program

Field sessions for the Training Program are scheduled by the Survey to coordinate with research and other obligations of the professional staff. From 1964 to 1971 these sessions lasted nine days -- a full week and the weekend on each side. With the establishment of the Certification Program in 1972, the field session was expanded to 19 days -- two weeks and the weekend at each end -- in order to accommodate the teaching of seminars, which are at the heart of the Certification Program. All participants must attend a four-hour orientation program the first day of their first time in the program. If they attend every year, thereafter they attend a short orientation their first day at the site.

Before describing the Training Program in more detail, let me say that in the course of 27 years, 23 different sites have been tested, most of which would have seen no work but for this program. Over 600 people have registered in the Certification Program and have attended from 1 to 18 years, about 100 are actually actively pursuing certification goals (see below), and 1 has achieved certification as a Field Archeologist. Attendance at the field sessions since 1972 has ranged from a low of around 80 in the heat-record year of 1980 to a high

LEVELS and AREAS of CERTIFICATION

LEVELS	AREAS of SPECIALIZATION		
IV. Certified	Field Archeologist		
III. Certified	Archeological Technician		
II. Certified	Crew Member	Lab Technician	Site Surveyor
I. Provisional	Crew Member	Lab Technician	Site Surveyor

Figure 1. Chart indicating the levels and categories of the Certification Program.

of 141, which is considered a maximum, in 1990. An effort is made to keep a supervisor/trainee ratio of 1 to 6.

The Training Program provides an opportunity for avocational archeologists to gain experience in all phases of archeological work -- excavation, site survey, laboratory processing, and analysis, under professional supervision. The only prerequisites are: (1) membership in the Arkansas Archeological Society; (2) payment of an annual registration free; and (3) agreement to abide by the rules and procedures for research set by the Survey. Anyone can take part in the Training Program, do field and lab work, and attend seminars provided he or she registers ahead of time.

The Certification Program

The Certification Program is an option within the Training Program. It provides Society members with a means of: (1) obtaining extended training, which includes formal seminars, in various aspects of archeology; (2) having their experience and training recognized through achieving "provisional" and then "certified" levels of performance; and (3) keeping a running log of these achievements, which is formally reviewed by a joint Survey/Society committee prior to awarding of certificates of achievement.

The program is organized in a series of eight categories on four levels (Figure 1). The basic level, Provisional, has three categories: Crew Member, Lab Technician, and Site Surveyor. The training and experience on this level are minimal -- one 20-hour seminar and 40 hours of supervised experience for Provisional Crew Member and Lab Technician, and one seminar and reporting three new sites on completed State site forms for the Provisional Site Surveyor.

The second level, Certified Crew Member, Lab Technician, and Site Surveyor, provides considerably more training in the field or lab, requires demonstrated skills in various field and laboratory techniques, and includes satisfactory completion of a series of topical seminars. By the time each of these six categories is completed, the individual is expected to be able to work under loose guidance and is also expected to be able to supervise other workers. At this level, the individual should understand how and why decisions are made in the field, and how these decisions influence the interpretation and analysis of data.

The third level is a single category, Certified Archeological Technician. This is attained when all six previous categories have been completed and a formal academic course on the archeology of eastern North America, or its equivalent, has been taken.

The fourth level, Certified Field Archeologist, is attained when the individual has completed all previous categories and has designed, carried out, and published a research project under the supervision of a professional archeologist.

Figure 2. Ed Jackson, Survey archeologist, instructs David Fuller and Jean Adams in the intricacies of identifying small pieces of animal bone during the Identification and Analysis seminar. (All photos in this technical brief are courtesy of Hester A. Davis.)

Some Particulars

There are two aspects of this Certification Program that make it unique: one is the seminars, and the other is the Log Book. At least these were unique when the program was initiated in 1972; since that time some other programs have adopted, and adapted, some of these ideas.

Twelve seminars are offered, each lasting approximately 20 hours (Figure 2). During any one field training session, usually eight or nine seminars are given, and every seminar is offered at least once every two years. These seminars are:

Basic Site Surveying Techniques;
Basic Field Excavation Techniques;
Basic Laboratory Techniques;
Lithic Description and Analysis;
Ceramic Description and Analysis;
Identification and Analysis of Animal Bone;
Identification and Analysis of Human Bone;
Establishing Time in Prehistory;
Field and Laboratory Photography;
Mapping Techniques;
Research Design;
Arkansas Archeology.

Figure 3. (Marvin Jeter, Survey archeologist, instructs Joyce Drennen in the fine points of sorting artifacts by raw material.

RECORD OF ACTIVITY

Site or Project	Description of Activity (Excav., Survey, Lab, or Special)	# Hrs.	Date	Supervising Archeologist
3LN43 TOLTEC	CLASSIFIED ARTIFACTS FROM 1989 DIG USING DELOS	7	1-20-90	MRobinson
3LN43 TOLTEC	CLASSIFIED ARTIFACTS FROM 1989 DIG USING DELOS	8½	2-7-90	MRobinson
3CL450 BARKMAN HOUSE	REMOVED TOP SOIL FROM SITE FILLED OUT LEVEL SHEET ON ONOE	8 hrs	3/9/90	
3CL450 BARKMAN HOUSE	FINISHED LEVEL ONE AND TWO. NOW APPROACHING LEVEL THREE REMOVED PEARL TYPE PITCHER ONOE	9 HRS	3/9/90	
3CL450 BARKMAN HOUSE	WORKING TO ARRIVE AT BASE OF LEVEL 3 ONOE	9 HRS	3/10/90	
3CL450 BARKMAN HOUSE	FINISHED LEVEL 3. WORKING ON LEVEL SHEET ONOE	5 HRS	3/11/90	
3CL450 BARKMAN HOUSE	FINISHED LEVEL ONOE	5 HRS	3/11/90	
Brushy Creek Campground	Cultural resources survey of Brushy Creek Campground on Lake DeGray, AHPP	18 Hrs.	2/5/90	

Figure 4. Actual page from a participant's Log Book.

During the summer field session, each seminar is taught four hours a day over a five-day period; the other half of the day is spent in the field or in the lab (Figure 3). The Basic Excavation Techniques seminar is considered a full day course, with half a day in the field and half a day in lectures. Since many people have now taken all 12 seminars, often one special seminar is offered each field session. Historic Archeology, Historic Indians in Arkansas, and Cultural Resource Management have been offered in the past. Sometimes one of the seminars is taught at other times during the year at one of the Arkansas Archeological Survey Research Stations, at various locations throughout the State.

The Log Book is based on the same principle as a Navy ship's log. On a daily basis, each individual can keep a running accounting of experience and time devoted to different activities (Figure 4). In the front there is a summary sheet requiring supervisors' signatures as the various requirements for a particular category are met.

The Log Book, which is the responsibility of the individual, and evaluation sheets prepared by each supervisor or seminar teacher, are used by the Evaluation Committee to review a person's achievements. The Committee then makes a recommendation to the Survey Director that a certificate be awarded. The Evaluation Committee consists of three Society members and two Survey staff members, with the State Archeologist serving *ex officio*. Both the Survey director and the Society president sign the certificates (Figures 5).

The Upside of [or Good Things About] the Program

There are, of course, two ways to look at this program, one from the Survey staff and one from the Society participants. From the Survey's viewpoint, the program as a whole has produced an avocational work force with known expertise, upon which it can, and does, call for help (Figures 6 and 7). In one emergency situation, 60 people showed up to work on 3 consecutive weekends, from dawn until dusk, helping rescue a landleveled prehistoric cemetery area. Another emergency involved the discovery of a large cellar in downtown Little Rock, which had been part of the mansion of a major figure in early 19th century Arkansas politics.

Figure 5. Anna Parks (right) receives a certificate from Ann Early, Survey archeologist, who is coordinator of the Certification Program.

Figure 6. Members of the Kadohadacho Chapter of the Arkansas Archeological Society help Survey archeologist Frank Schambach test a site to be affected by a small water supply lake.

Figure 7. David Jearne (left) and Herschel Kitchens (right), two past president of the Arkansas Archeological Society, show off mastodon bones discovered in the eroding bank of the Red River in southwest Arkansas. More than a dozen volunteers helped Survey archeologist Frank Schambach excavate these prehistoric remains.

The developers allowed 10 days for excavations, and volunteers were there every day, working under the supervision of the Survey's historical archeologist. As members progress through the program, the Survey has called upon individuals to help with contract projects as well; one National Park Service contract on a data recovery mitigation project required the use of trained volunteers. In other instances, people advanced in the program have been hired as crew members. These people know the Survey's recordkeeping system, and the Survey staff knows who has had what kinds of experience and who can supervise the less experienced crew people or other volunteers. All the Survey's Research Stations use the local members for lab work all year long, and several avocational members with computer backgrounds enter data into the Survey's computerized cataloguing system.

An additional practical benefit of the Field Training Program in general is that, with reduced State funding for hired crews, the two-and-a-half week summer field program provides a concentrated time during which one of the Survey archeologists gets a lot of field testing done in support of his or her research. For several years this Field Training Program and projects using trained volunteers from the program have provided the only opportunities for field work for the Survey staff. The Survey has calculated that its fiscal commitment, in terms of staff time alone, is equaled by the volunteers' time, figuring the going hourly wage for crews.

For the Society members, the advantages of the program are probably as diverse as the individuals themselves. One Society member has written:

> For the Society's part, its members are wildly grateful for the professional network they may draw upon, and are acutely aware that the information and training they are getting is rarely available to amateurs in such a comprehensive and inexpensive form ... Although most participants come from Arkansas, there are those who travel hundreds of miles to attend the Society dig. Frank Breunig, a retired businessman from Atlanta, has been coming since 1972 when he spotted an article about the program in the National Observer; bassoonist Virginia Hourigan roars down from New York on her motorcycle; Bill Jordan of Illinois arrives before anyone else and stays until the last tent is packed and gone. Many are drawn because they found public archeology programs lacking in their own states (Newell 1988).

Keeping track of time and experience in a Log Book, and periodically earning recognition for achievement provides real satisfaction, whether (or not) an individual intends to strive for the goal of Certified Field Archeologist.

Finally, compared to some other training programs, this one is relatively inexpensive. The annual registration fee for the Field Training Program is graduated depending upon how many days an individual stays, with a maximum charge at the present time of $25. This pays for the large packet of information participants receive upon registration and another packet distributed at the site with field and laboratory procedures specific to the site. Registration for the Certification Program is a one-time fee of $12.50, which essentially pays for the Log Book. The Society runs a camp for members during the dig for which there is a small nightly fee. Members must provide their own food and usually provide their own transportation during the dig as well. This can add up if the seminars are held at a local school 10 miles from the site and camp. Large excavation equipment is provided by the Survey, but each member must have his or her own trowel, tape, and similar small equipment.

The Downside of [or Some Less-Than-Good Things About] the Program

From the Survey's point of view, the commitment of time and personnel goes far beyond that of the Training Program itself; in terms of staff time alone, this is an expensive program. One staff member and her secretary spend at least a quarter of their time maintaining copies of all certification records and Log Books, preparing information for the Evaluation Committee, and then, as registrations come in for the summer program, assigning individuals to the seminars and other experiences that they need to advance in the program.

Figure 8. The science classroom of the Sparkman High School converted into an archeological processing lab, June 1987.

The Survey archeologist, who is field director for the summer program, spends at least a month full time prior to the field program figuring out how to make best use of 120 to 140 people over a 2-week period to achieve the goals of the research. At the time of the field program, 10 to 12 staff members devote from 10 to 20 days full time to the program, either teaching seminars or acting as supervisors in the field or lab, or both. This takes archeologists away from their own research, interrupting their own programs, which always need attention.

Finally, there has never been a field session in which all the excavated material was processed by the end of the two-and-a-half weeks, despite having a half dozen people assigned to the lab every day and scheduling several evening labs. This is not unusual, of course, and during the following months local Society members work in the Survey archeologist's lab so that everything is at least cleaned and numbered before the next field program. However, even when a different archeologist is directing the program each summer, the ability to do a final analysis and write a report on this work is often curtailed by the Survey archeologist's normal duties during the year. Reports on several summer projects have been published, but there are several that have not. There are few trainees who are advanced enough in the program to provide help at this stage, although one participant is writing up one of the excavation projects as his final report for the category of Certified Field Archeologist. The backlog of material to analyze and write up puts some pressure on the Survey staff when there is a commitment to have a training program every summer.

From the individual participant's viewpoint, the program takes a long time to complete. Only one person has achieved the "rank" of Certified Field Archeologist with the publication of a report on personal research (White 1987). Two more are in the throes of completing their final research projects.

Members want to work at sites where there are a lot of things to find. Sometimes the site an archeologist needs help with doesn't have lots of goodies; recording a feature isn't half as much fun as finding artifacts. Working in the field in Arkansas in June or July can be brutally hot, and storms can be destructively severe. Although all registrants receive Do's and Don'ts and Guidelines for Conduct before the program begins, some new members are disappointed that they cannot work exactly where and when they want, that they must spend some time in the lab, that they need to get up at 5:30 in the morning in order to be ready for work at 6:30, and that they can't keep any of the artifacts they find. These people generally don't return for a second year.

Logistics

Aside from the pros and cons, the logistics of providing for the summer field program are complex, although no more so, perhaps, than those of the Texas Archeological Society's Field School and not much more so than many other field schools and certain overseas projects.

The site chosen for an excavation must be part of one of the Survey archeologist's research programs, it must be accessible, and there must be space for a minimum of a dozen cars and trucks. There must be room to accommodate a maximum of 60 people at any one time, and, preferably, it should have artifacts and features so that members will learn how to excavate and record them. It should not be too deep or too small. All these circumstances present the problem of accommodating lots of people for a short period of time.

The Society makes all arrangements for a camp site for its members, which must be close to the excavation site -- at least within reasonable driving distance. The campsite must be able to accommodate a maximum of 50 tents, campers, and an equivalent number of cars at any one time; portable toilets and potable water must be available; swimming or shower facilities must be found; ice and food supplies must be within reasonable driving distance; also, sites with shade trees are prefered. A local school is usually sought as the place for holding the seminars and for setting up the lab (Figure 8), so both site and camp should be within reasonable driving distance of a school. Sometimes this is a small rural school; sometimes a larger modern school. This past summer the Survey was able to borrow a high school's VCR for supplemental instruction in several of the seminars. There must be space for two seminars and an orientation program to be given at one time -- three classrooms at a minimum. We have made do sometimes in abandoned houses with no electricity and with the lab set up in a surplus army cook tent at the site.

A quirk in the State's geography and climate means that choices are somewhat limited. There are many sites in eastern Arkansas that need testing, but it simply is not possible to camp out in that part of the State after about June 15, because the mosquitoes will carry you away. In any event, there are very few places to camp in the eastern half of the State, which is largely under cultivation.

The Survey and the Society must work closely together in planning where the program will be held each summer and in arranging for all the appropriate accommodations. Basic decisions on where the program will be held and when must be made by early fall, so that all these arrangements can be made before March, when notices go out for registration, and so that Society members can plan their vacation time.

Several times we have held the program at the same site for two or three years in a row. The advantages are obvious; once the logistics are arranged for, the following year is simple, and the archeologist is able to retrieve a much better sample of information from the site. In addition, a multiple year commitment usually means a greater scientific return. On the other hand, moving the program around the State exposes more of the public to archeology, gives the participants a wider range of experience in different kinds of sites, and gives the field director a break from responsibility for the program every summer.

Summary

The Training Program in general and the Certification Program in particular, as developed in Arkansas, have taken great amounts of time, energy, and commitment on the part of the Arkansas Archeological Survey staff, but it has been more than worth it. There is now a trained core of individuals, with known skills, who are ready and willing to help at a moment's call. We can see, especially in those who return for several years, a definite shift in perception of and attitude toward archeological resources. The idea of ethics in archeology is evident in work and deed. Almost all of the field and laboratory research that Survey archeologists do involves some of these individuals to some extent. Usually more than 6000 volunteer hours are given by Society members to the Survey programs during the course of a year, more than half of them during the summer field program.

"The Arkansas Archeologist," an artist's conception, based upon detailed instructions provided to volunteers on what to expect and what to bring to the Training program. (Drawing by the University of Arkansas Museum's artist, 1964.)

We are often asked for information on the program, and the next question is usually, "How can you do all that?" It is in the context of the statewide, coordinated Survey program that it is possible for 10 to 12 professional archeologists to participate in the summer field program. No matter what their own research, or in what part of the State the Field Training Program is located, the Survey staff is expected to help with supervision and in teaching seminars. It is a part of their jobs. Even for those who receive no personal research benefit from the field program, the friendships and fellowship of the summer excavations are worth it!

Finally, what does it mean to an individual to be a Certified Field Archeologist? To have taken 10 years to go through all the steps, and to have tackled a full research project and have the report published? Certainly, such a person has as much, if not more, field and laboratory experience as most people who go through a regular M.A. academic program in two or three years. The concentrated work is not there, and the depth of the theoretical background may not be the same, but the ability to take on a research project is equal, and her or his Log Book attests to that training and experience. In addition, these individuals have had the advantage of working under supervision of a dozen archeologists, each with a different approach to a site and to ways of interpreting data. This breadth of experience is not equalled in the usual M.A. program.

The program does not turn out "professional archeologists" in any way that phrase is currently used. It is not designed to do that. These individuals do not meet the Federal requirements for a professional archeologist (National Park Service 1983) and therefore normally do not qualify to undertake cultural resource projects on their own. But the Survey would gladly give any one of these individuals support for her or his own research projects. The Survey hires individuals in the program on its projects, it asks them to check on sites that are reported to be disturbed, and the staff is ready and willing to answer all questions, and provide supervision for individual projects. The individual has the satisfaction of knowing that by pursuing an enjoyable avocation, he or she is not only helping in a truly scientific endeavor, but that this activity is not destroying the very information and material that is sought.

The Arkansas Archeological Society is neither as rich as its Texas counterpart, which hires its own professional archeologists, nor as highbrow as the Louisiana amateur group, whose recent annual meeting featured wine, cheeses, and Ivor Noel Hume. But what the down-home Arkansans lack in money and white tablecloths they seek to make up in skill, and some would judge them the best trained amateurs in the country (Newell 1988:1).

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